Examination Papers.

ALGEBRA.

JUNE, 1880.

ALGEBRA.

- 1. What is the algebraic sum of two or more quantities?
- 2. From $\frac{a+b}{b^2}$ take $\frac{a-b}{ab}$; multiply the remainder by $\frac{1}{ab}$; and divide the product by $\frac{a-b}{ab}$ What is the quotient?
- 3. Find greatest common divisor and least common multiple of $x^3-2x^2-19x+20$ and $x^2-12x+35$.
 - 4. Reduce $3a-9-\frac{3a-30}{a+3}$ to a fraction.
- 5-6. Name and define the kind of equality which must subsist in an equation.
- 7. Find the value of x in the following equation: $\frac{x-3}{2} + \frac{x}{2} = 20 \frac{x+19}{2}.$
- 8. A and B have the same income. A contracts an annual debt amounting to \(\frac{1}{2}\) of it; B lives upon \(\frac{4}{2}\) of it. At the end of two years B lends to A enough to pay off his debts, and has \(\frac{4}{32}\) remaining. What is the income of each?
 - 9. What is Elimination?
- 10. A engaged to work a days on these conditions: For each day he worked he was to receive b cents, and for each day he was idle he was to forfeit c cents: at the end of a days he received d cents. How many days was he idle?
- 11. A sum of money was divided equally among a certain number of persons. Had there been three more, each would have received \$1 less, and had there been two fewer, each would have received \$1 more than he did. How many persons were there, and what did each receive?

- 12. What is the value of the expression $\frac{a}{2}$?
- 13. Give the process of reasoning which leads to that conclusion.
- 14. Given, 5x+3y>121 and 7x+4y=168, to find the limits of x and y.
- 15-16. Find the value of each of the following expressions, giving the answer to the last in the form of an entire quantity: $(x^my^n)^m$; $\left\{-\frac{a^{-1}x^2}{h^{-3}x}\right\}^3$
 - 17. What is an imaginary quantity?
 - 18. Multiply $a\sqrt{-b}$ by $\sqrt{-c}$
 - 19. What is a surd?
 - 20. Reduce $2^{\sqrt{\frac{2a}{3}}}$ to its simplest form.
- 21. From the sum of $V \frac{\overline{a^2(a-b)}}{a+b}$ and $V \frac{\overline{b^3(a+b)}}{a-b}$ take $(a-b) V \frac{1}{\overline{a^2-b^2}}$.
- 22. Divide $\frac{\sqrt{a}}{3}$ by $\frac{\sqrt[4]{a^3}}{3\sqrt{a^3}}$.
 - 23. What is the square root of $16+30\sqrt{-1}$?
 - 24. Reduce $\frac{\sqrt{11}+\sqrt{5}}{\sqrt{11}-\sqrt{5}}$ to a rational denominator.
- 25. Find the value of the unknown quantity in the following equation:

$$x+a=V \frac{1}{a^2+x\sqrt{b^2+x^2}}$$

Examination Papers.

ARITHMETIC.

JUNE, 1880

ARITHMETIC.

- 1. What is the amount of 10 cents, for 10 years, 10 months, 10 days, at 10%?
- 2. What is the interest on \$7.07, for 7 years, 7 months, 7 days, at 7%?
- 3. A man who is paying \$650 a year for house rent, borrows \$8,500 at 6% and buys the house; does he gain or lose annually by the transaction?
- 4. A broker allows 5% on deposits, and on an average lends out the money deposited with him 11 times a year, for 33 days each time, at 2% a month; what is his gain on \$5,000?
- 5. A speculator borrowed \$9.675 at 0%, April 15, 1874, with which he bought flour at \$6.25 a barrel. On May 10, 1875, he sold the flour at \$7\frac{2}{3} a barrel, cash. What did he gain by the transaction?
- 6. A tract of land containing 450 acres was bought at \$36 an acre, the money paid for it having been borrowed at 5½%. At the end of 3 years, 8 months, 24 days, \$ of the land sold at \$40 an acre, and the remainder at \$38½ an acre. What was gained or lost by the transaction?
- 7. A 60-day note for \$350, without interest, was paid in 90 days; what was the amount due?
- 8. What are the proceeds of a note for \$597.50, due in 60 days, at 6% ?
- 9. \$1,315,765. New York, May 1, 1875. Ninety days after date, I promise to pay to the order of Ivison, Blakeman & Co., one thousand three hundred and 755 dollars, value received.

Discounted at a bank, May 15, at 7%.

WILLIAM HEWSON.

- 10. Received from Savannah 250 bales of cotton, each weighing 520, and invoiced at 12½ cents a pound. Sold it at an advance of 25%, commission 1½%, and remitted the proceeds by draft. What was the face of the draft, exchange being ½% discount?
- 11. A merchant in Cincinnati remitted to New York a draft for \$7,500, payable 30 days after sight, at 6%, exchange 2½%; what did he pay for the draft?
- 12. Prime & Co. fail in business; their liabilities amount to \$22,000, their available resources to \$8,800. They owe A \$4,275, and B \$2,175.50; what will each of these creditors receive?
- 13. Jan. 1, 1876, three persons began business with \$1,300 capital furnished by A; March 1, B put in \$1,000; Aug. 1, C put in \$900. The profits at the end of the year were \$750; what share will each receive?
- 14. A man wills \$3,000 to his daughter, \$3,500 to his son, and \$4,000 to his wife; upon settling his estate, his fortune was found to be only \$8,400; how should the property be divided?
- 15. Three persons enter into partnership with a capital of \$4,200; A puts in \$5 as often as B \$7 and C \$9; their annual gain is equal to A's stock; how much is each partner's share of the gain?

Examination Papers.

PERSPECTIVE DRAWING.

JUNE, 1880

PERSPECTIVE DRAWING.

The scale to be used in the drawing is one foot to the half inch.

Each correctly solved problem will count 3%, and neatness of work 10%.

- 1. Represent a horizontal line 12 feet in length.
- 2. Place the center of vision in the middle of this line, and indicate by symbol its other name.
 - 3. Draw the line of direction 6 feet in length.
 - 4. Locate the station point.
 - 5. Draw the picture line 3 feet below the H. L.
 - 6. Locate the distance points for parallel perspective.
- 7. On the picture plane, represent the perspective position of a dot (a), situated on the ground plane, 3 feet at the left of the L. D., and 2 feet back of the picture plane.
- 8. On the picture plane, represent the perspective position of a line (ab) $2\frac{1}{2}$ feet in length, situated on the ground plane, and 3 feet at the left of the L. D. This line touches the picture plane and is perpendicular to it.
- 9. On the right of the L. D., at a distance of 3 feet, draw a line 6 feet in length similarly situated.
 - Find the perspective center of this line.
 - 11. From this point erect a vertical line 6 feet in length.
- 1?. Reconstruct the preliminary work of the above, with the picture line 2 feet below the H. L. Represent in parallel perspective a square measuring 3 feet on each side, situated on the ground plane and resting against the picture plane, at a distance of 1 foot at the left of the L. D.

- 13. Find the perspective center of the above square.
- 14. From its perspective center erect a line 7 feet long.
- 15. On the right of the L. D., at a distance of 2 feet, draw a similar square, and on it, as a base, construct a cube.
- 16. Reconstruct the preliminary work of Prob. 12. Draw two perspective squares, as in Prob. 12 and Prob. 15. On the left hand square, as a base, construct an upright prism 7 feet high; and on the right hand square, as a base, erect a pyramid 7 feet high.
- 17. Draw the H. L., 14 feet in length; locate the C. V., 6½ feet from the right end of the H. L.; make the L. D. 6 feet long; locate the S. P.; and draw the picture line 3 feet below the H. L.
- 18. Find the vanishing points of lines, situated on the ground plane, forming angles of 45° to the right and left with the picture plane.

19. Find their respective measuring points.

- 20. Represent a line 3 feet long resting on the ground plane, forming an angle to the left with the picture plane of 45°, and one end touching the P. L. at a distance of 2 feet to the left of the L. D.
 - 21. Find the perspective middle of this line.
 - 22. From this point erect a line 6 feet high.
- 23. On the right of the L. D., at a distance of 3 feet, draw a square measuring 2 feet on each side, resting on the ground plane, touching the P. L., its sides forming angles of 45° with the picture plane.

24. On this square, as a base, construct a pyramid 4 feet

high.

25. Reconstruct the work of Prob. 17, and find the V P, and its M. P., of a line situated on the ground plane, forming an angle of 40° with the picture plane, on the right of the L. D.

26. Find the V. P., and its M. P., of a line situated on the ground plane, forming an angle of 50° with the picture plane, on the left of the L. D.

27. On the picture plane represent a square, whose dimensions are 2 feet, situated on the ground plane, one corner

resting against the picture plane, 2 feet at the left of the L. D.; the right hand side of the square forming an angle of 40°, the left an angle of 50°, with the picture plane.

- 28. On this square construct a cube.
- 29. On the right of the L. D., at an equal distance, construct a square and cube like that in Prob. 27, and on the cube draw a pyramid 4 feet high.
- 30. State which of the above problems belong to angular perspective.

Examination Papers.

BOTANY

JUNE, 1880.

BOTANY.

PARTI

- 1. What relation does the vegetable kingdom sustain to the mineral and animal kingdoms?
 - 2. Name a plant's organs of vegetation.
 - 3. What are the two functions of a leaf in vegetation?
- 4. In what are biennials engaged during the first year of their growth?
 - 5. Of what use is the flower to a plant?
 - Name the essential organs of a flower.
 - 7. Name what is produced by each organ.
- 8. What is necessary in order that an ovule may become a seed?
 - 9. Name the parts of the embryo in a seed.
- 10. What provision does nature make for the nourishment of the germ, in the seed, at the commencement of its growth?
 - 11. What are dicotyledonous plants?
- 12. How would you be able to recognize an exogenous plant from a section of its stem?
- 13. State the two divisions into which leaves are classified on account of their venation.
- 14. What chemical changes are effected in the air by the respiration of plants?
- 15. Which is true reproduction of plants; propagation from buds or from seeds?
 - 16-17. Define axillary and terminal inflorescence.

- 18. What constitutes the scientific name of a plant?
- 19. What are the two kinds of classification in botany?
- 20. Of what is an order, or family composed?

PART II.

- 21. Describe No. 1 specimen in regard to kind, venation, form and margin.
 - 22. Similarly describe No. 2.
- 23. State which of the above specimens belong to the exogens and which to the endogens.
- 24. State the number of the cotyledons in the seeds from which they were respectively produced.
- 25. Is No. 3 an endogen or an exogen? Give the reason for your answer.
 - 26. Name the three parts of the seed before you.
- 27. Would the stem growing from it be an endogen or an exogen?
 - 28. What would be the venation of the leaves?
- 29. State what kind of a compound leaf No. 5 specimen is; also state its venation.
- 30. How many petals and how many sepals would the flower of the plant to which it belongs be likely to have?
- 31-32. Is the plant from which leaf was removed, cryptogamous or phenogamous; endogenous or exogenous?

Describe the parts of the plant before you, in accordance with the appended order of description:

- 33. Root.-Kind; as primary or secondary.
- 34. Stem .- Class; character, direction of growth.
- 35. Leaves.—Kind, venation, form, margin arrangement.
- 36. Infloresence.—Kind; as solitary or clustered, terminal or axillary.
- 37. Calyx.—Kind; as monosepalous or polysepalous; insertion.
 - 38. Sepals.-Number, form, color.

- 39. Corolla.—Kind; as monopetalous or polypetalous; form, insertion.
 - 40. Petals .-- Number, cohesion, color.
 - 41. Stamens.-Parts, number, insertion.
- 42. Pistil.—Kind; as simple, compound or multiple, parts.
- 43. Ovary.—Kind; as simple, compound or multiple, number of cells.
 - 44. Fruit.—Kind; as dehiscent or indehiscent.
- 45. Flower.—Complete or incomplete; regular or irregular; perfect or imperfect.
 - 46. Class .-
 - 47. Division .-
 - 48. Order or Family.-
 - 49. Scientific name.-
 - 50. Common name.—

Examination Papers.

POLITICAL ECONOMY

JUNE, 1880.

POLITICAL ECONOMY.

- 1. What reasons can you give for the late growth of the science of Political Economy?
- :. Give a definition of Political Economy, explaining terms so far as necessary.
 - 3. Define wealth. <
 - 4. What things are necessary to produce wealth?
 - 5. Define capital.
 - Explain the relation of capital to labor.
- 7. In what ways does productive consumption benefit labor?
- 8. In what ways does unproductive consumption injure labor?
 - 9. What has led to division of labor?
 - 10. What is meant by division of labor?
- 11. State the advantages and disadvantages of such division.
 - 12. Explain the nature of wages.
- 13. What conditions, aside from the law of supply and demand, affect the rate of wages?
 - 14. What is a strike?
 - 15. Why is it a bad policy to strike?
 - 16. Explain the origin of property in land.
 - Give Ricardo's theory of rent.

Examination Papers.

COMPOSITION AND ELOCUTION.

JUNE, 1880

COMPOSITION AND ELOCUTION,

SECOND YEAR.

- 1-3. Give general divisions of the subject of Diction.
- 4-6. State three means of promoting Harmony in a sentence.
- 7-26. Define and illustrate each of the following figures of speech: syncope, prosthesis, tmesis, pleonasm, simile, metaphor, metonymy, syncodoche, enumeration, vision:
 - 27. Give three laws governing the use of simile.
 - 28. Give three laws governing the use of metaphor.
 - 29. Define Versification.
 - 30. Define Verse.
- 31. Explain more fully the nature and mechanism of verse, and its relations to prose.
- 32-39. Name and illustrate the principal forms of poetic feet.
- 40-45. Name and illustrate the three secondary forms of poetic feet.
- 46-47. What are kindred feet, and how used in versification?
- 48. What should prevent a word, or any particular syllable of a word, from taking the poetic accent?
- 49. What distinction between ancient and modern versification?
 - 50. Define Blank Verse.
 - 51. Define Heroic Verse.
 - 52-55. Mention four common forms of poetic license.

- 56-63. What qualities of style characterize each of the following authors respectively:—Milton, Goldsmith, Whittier, Lowell?
- 64-69. To what department of literature do the works of each of the following authors respectively belong:—Lamb, Burke, Irving, Carlyle, Willis, Agassiz?
- 70. Who wrote The Decline and Fall of the Roman Empire?
 - 71. Who wrote The Rise of the Dutch Republic?
 - 72. Who wrote The Conquest of Peru?
- 73-84. In the following quotations from Hamlet, point out the figures of speech, the peculiar idioms or forms of construction, and give the meaning of italicized words or expressions:
 - (a) King to Vol.— It likes us well,

 And at our more considered time we'll read.
 - (b) King to Ros. and Guil.— I entreat you both That,—being of so young days brought up with him, And since so neighbor'd to his youth and humour,—
 - (c) Pol. to King.—Be you and I behind an arras then.
 - (d) Pol. to Rey.—Marry, sir, here's my drift; And I believe it is a fetch of warrant.
 - (e) Ham. to Ghost.—Thou com'st in such a questionable shape,

That I will speak to thee.

- (f) Hor. to Ham.—Season your admiration for a while With an attent ear.
- (g) Hor.—Th' extravagant and erring spirit hies To his confine.
- 85-100. Scan the following lines, pointing out figures of speech and poetic licenses:
 - a) Who never fasts, no banquet e'er enjoys.
 - (b) Streaming grief his faded cheek bedewed.
 - (c) To some she gave
 To search the story of eternal thought.

- (d) Sat often in the seaward gazing gorge,A ship-wrecked sailor waiting for a sail.
- (e) To err is human; to forgive, divine.
- (f) In the startled ear of night,
 How they scream out their affright!
 Too much horrified to speak,
 They can only shriek, shriek,
 Out of tune.

ROCHESTER FREE ACADEMY.

Examination Papers.

HISTORY

JUNE, 1880

History.

- 1. When and how did the House of Brunswick obtain the English throne?
 - 2. Name the wars of the reign of George II.
- 3. Give an account of the cause and results of the Seven Years War.
- 4. What caused the slow development of Russian civilization?
- 5. Name the Russian sovereigns of the Romanoff line, and give an account of the career of the greatest of them.
 - 6. Give an account of the career of Charles XII.
- 7. When and by what powers was the first partition of Poland made?
 - 8. Name the ministers of Louis XVI.
- 9. What caused the disagreement between the estates composing the States General?
 - 10. State the chief events of the French Revolution.
- 11. What facts have stamped the nineteenth century with its peculiar character?
 - 12. Give an outline of the career of Napoleon Bonaparte.
- 13. Mention the forms of government through which France has passed from the time of Napoleon I to the present.
 - 14. What countries took part in the Crimean war?
- 15. Give an outline of the events that led to the unification of Italy from 1848 to 1870.
- 16. What effect upon Germany had the French revolution of 1848?

17. What was the outcome of the second war on the Schleswig-Holstein question?

18. What was the cause of the Franco-Prussian war?

19. What terms of peace closed the Franco-Prussian war?

20. What is the nature of the German constitution?

Examination Papers.

German Grammar.

JUNE, 1880.

German Grammar.

- 1. How are the variatives formed?
- How are the multiplicatives formed?
- 3. How are the fractionals formed?
- 4. Give the principal parts of dürfen.
- 5. Compare füß, ebel and gut.
- 6. Give the personal pronouns in singular and plural number.
 - 7. What makes wer and was more emphatic?
 - 8. How are wer, mas and melder used?
 - 9. How are adverbs formed from nouns?
 - 10. Translate Werda, Gottlob, Achtung and Wohlan.
 - Conjugate Loben in the present.
 Conjugate Abjäreiben in the perfect.
 - 15. How many inseparable prefixes are there?
 - 14. Give the gender of Sohn and Söhnchen.
- 15. How many formes of declension has the attributive objective?
 - 16. What is the order of words in a German sentence?
 - 17. Render the former and the latter in German.
 - 18. Explain the two modes of address in German.
 - 19. Write in German a description of Rochester.
 - 20. TRANSLATE:

Der Geighals.

Ein Gelzhals hatte einen Schat vergraben. Man stahl ihm benselben und legte einen Stein an seine Stelle. Unglücklicher, ber ich bin! sagte der Geizhals zu einem Nachbar, indem er es ihm erzählte. — Wenn nennen sie unglücklich? fragte dieser. — Schöne Frage, mich selbst; ich, der ich mit Ihnen rede, ich bin unglücklich: das Geld gehörte nicht mir allein; man hat es mir gesichlen, das anvertraute Geld und mein eigenes. — Bas die Summe betrifft.

die Ihnen nicht gehört, hat man Ihnen dieselbe gegeben, um sie zu vergraben? — Allerdings hat man sie mir dazu gegeben. — Run wohl, versetzte der Rachbar, in diesem Falle kann Ihnen der Diebstahl gleichgültig sein, Ihnen und Ihrem Freunde. Bilben Sie sich alle Beide ein, der Stein sei Jhr Schatz; da Sie ihn nicht benuzten, so sind Sie darum nicht ärmer. — Und selbst wenn ich darum nicht ärmer wäre, versetzte der Geizhals, ist ein Anderer nicht um so reicher? Ich möchte rasend werden, wenn ich darun benke.

ROCHESTER FREE ACADEMY.

Examination Papers.

German Reader.

JUNE, 1880.

German Reader.

- 1. Describe the following tenses:
 - a) The present tense.
 - b) " imperfect "
 - c) " perfect "
 - d) " pluperfect "
 - e) " future "
- 2. What is the former and what the present defination of fönnen?
 - 3. How is the future participle obtained in German?
- 4. When several adverbs or adverbial expressions are used in the same sentence which precede all others?
- 5. How must Adjectives be changed when used as Nouns?
 - 6. How is the present participle used in German?
 - 7. TRANSLATE:
- 3 v h.—Wo war ich? Sagt mir, war das Alles nur Ein langer Traum, und ich bin aufgewacht?
 Bin ich hinweg aus Dom Remi? Nicht wahr?
 Ich war entschlen unter'm Zauberbaum
 Und din erwacht, und ihr steht um mich her,
 Die wohlbekannten traulichen Gestalten?
 Mir hat von diesen Königen und Schlachten
 Und Kriegsthaten nur geträumt—Es waren
 Rur Schatten, die an mir vorübergingen:
 Denn lebhaft träumt sich's unter diesem Baum.—
 Wie tämet ihr nach Rheims? Wie fäm' ich selbst Hiefer? Nie, nie verließ ich Dom Kemi!
 Gesteht mir's offen und erfreut nein Derz.
- 8. Write a German composition on the Discovery of America.
- 9. Give the Names of all the German authors you remember.

Examination Papers.

LATIN LESSONS.

JUNE, 1880

Latin Lessons.

- 1. Translate into English:
- 1. Obliviscere caedis atque iucendiorum. 2. Te fortunae tuae poenitet. 3. Multi mihi sunt libri. 4. Vir puero librum dedit. 5. Finem labori nox attulit. 6. Caesari omnia erant agenda. 7. Legatus equitatum auxilio Caesari miserat. 8. Filius patri est similis. 9. Vir ille grammaticam nos docebat. 10. Turris pedes ducentos alta est. 11. Oculis videmus, auribus audimus.
- \mathfrak{L} . Give the rule for the case of each noun and pronoun used in the foregoing sentences.
 - 3. Translate into Latin:
- 1. It is (the part) of a judge to hear patiently. 2. I am ashamed of my fault. 3. I will consult my brother. 4. You have declared war against me. 5. Who taught you music? 6. The soldiers are said to have been brave. 7. I think that the mind of man is immortal. 8. They have need of a guide. 9. The soldier was killed by a javelin. 10. After he had heard these things, he led his army to the banks of the river.
- 4. Give the principal parts, active and passive, of dedit, attulit, agenda erant, miseral, docebat, videmus, audimus.
 - 5. Translate:

Ea res est Helvetiis enuntiata. Orgetorigem ex vinculis causam dicere coegerunt. Damnatum poenam sequi oportebat, ut igni cremaretur.

- 6. Dispose of poenam, and of damnatum.
- 7. Give the principal parts of enuntiata est, dicere, sequi.

8. Translate:

His rebus adducti, constituerunt ea quae ad proficiscendum pertinerent comparare.

- 9. Parse quae.
- 10. Parse comparare.
- 11. Translate:

Erant omnino itinera duo, quibus itineribus domo exire possent; unum per Sequanos, angustum et difficile, inter montem Juram et flumen Rhodanum; alterum per provinciam nostram multo facilius atque expeditius.

- 12. Compare facilius and expeditius.
- 13. Decline facilius and expeditius.
- 14. Give a synopsis of exire in the active voice, indicative and subjunctive modes.
 - 15. Translate:

Aedui, cum se defendere non possent, legatos ad Caesarem mittunt, rogatum auxilium.

- 16. Parse se.
- 17. Give the rule for the use of rogatum.
- 18. Translate:

Ubi Caesar certior factus est tres copiarum partes Helvetios transduxisse, quartam vero partem citra flumen esse, de tertia vigilia e castris profectus ad eam partem pervenit, quae nondum transierat.

- 19. Dispose of Helvetios, partes, partem.
- 20. With what does profectus agree?
- 21. Decline copiarum, partem, flumen, vigilia, castris, and name the declension to which each belongs.
 - 22. Translate:

His Caesar ita respondit: Sibi minus dubitationis dari, quod eas res, quas commemorassent, memoria teneret. Si veteris contumeliae oblivisci vellet, num recentium injuriarum memoriam deponere posse?

- 23. What is indirect discourse, and what is its essential characteristic?
 - 24. What is denoted by num?

- 25. Parse contumeliae.
- 26. Translate:

Ita dies circiter quindecim iter secerunt, uti, inter novissimum hostium agmen et nostrum primum, non amplius quinis aut senis milibus passuum interesset.

- 27. What is indicated by the use of quinis and senis?
- 28. Dispose of passuum.
- 29. Between what words does inter show the relation?
- 30. Why is interesset in the subjunctive?

Examination Papers.

LATIN COMPOSITION.

JUNE, 1880

LATIN COMPOSITION.

T.

What is the rule for the sequence of tenses? Translate into Latin:

Some fathers of families provided by their will that victims should be led to the Capitol, and vows discharged for them by their heirs, because they had left Augustus alive.

Few have been found who have exposed their lives to the weapons of the enemy, with no reward in view.

Socrates was accustomed to say that all men were sufficiently eloquent in that which they understood.

Caesar entertained confident hopes that, when his demands should be known, it would come to pass that Ariovistus would desist from his obstinancy.

TT.

What is the general use of the subjunctive? Translate into Latin:

There was a great dispute among the generals, whether they should defend themselves by their walls, or should meet the enemy, and engage in battle.

Grant, indeed, that those things are good things which are so esteemed,—honors, riches, pleasures and the rest,—yet even in the enjoyment of these, immoderate joy is unseemly.

So live with an inferior as you would wish a superior to live with you.

What can seem great to him in human affairs, to whom all eternity and the magnitude of the whole universe is known.

III.

In the protasis of conditional clauses, what expresses the non-existence of the action or state supposed? What implies the real or possible existence of the action or state supposed?

Translate into Latin:

These things seem ridiculous to you, because you are not present, which, if you were to see, you could not help weeping.

There is the greatest accuracy of information in the senses, if they are sound, and all things are removed which hinder and obstruct

If a good reputation is better than riches, and money is so eagerly desired, how much more ought glory to be desired.

Arms are of little value abroad, unless there is prudent management at home.

IV.

How is purpose, object or result usually expressed? Translate into Latin:

It is a custom of mankind, that they are unwilling that the same person should excel in many things.

Hannibal so united his troops by a sort of bond, that no mutiny existed either among themselves or against their general.

It happens, somehow or other, that, if any fault is committed, we perceive it more readily in others than in ourselves.

This is a common vice in great and free states, that envy is an attendant on glory, and that they willingly detract from those whom they perceive to be too eminent.

Examination Papers.

CAESAR

JUNE, 1880.

CÆSAR.

ī.

Give the genitive singular of daphne, vir, filius, Athos, poema, apex, aries, ebur, mare, mus, sus, caro, Carthago, basis, Daphnis, nix, far, jecur, hepar, demus, veru, meridies, uter, puter, iens, dives, idem, iste, quidam, unusquisque; the dative singular of onager, Orpheus, ops, comes, nomen, tigris, Dido, rhus, onyx, lacus, nullus, atrox, melius, hic, aliquis; the accusative singular of cometes, Delos, turris, sitis, bos, Agamemnon, basis, nais, equester, alius, plus, ille, illic, quisquis; the vocative singular of Aeneas, meus, Orpheus; the ablative singular of buris, fames, Simois, domus, res, levis, carior; the genitive plural of auceps, ops, nubes, volucer, manus, vetus; the ablative plural of liberta, opus, bos, sus, partus, quidam.

II.

Give the comparative of felix, idoneus, malus, frugi, malevolus, care, secus; the superlative of hebes, humilis, miser, male, parum; the fifth five cardinals; the third five ordinals; the fourth five distributives; the second ten numeral adverbs; the principal parts of juvo, poto, mordeo, gaudeo, tondeo, tango, pello, fallo, sisto, cerno, pasco, sterno, nosco, volvo, queror, ulciscor, fero; the synopsis of volo, in the second person singular; the synopsis of edo, in the third person plural, passive; the imperative present, second person singular, active and passive, of amo, moneo, tego, audio, facio; the present, future and perfect infinitives of miror, vereor, sequor, potior.

III.

How is the source or material expressed in Latin? quality? the charge or penalty? the purpose or end? the agent of a passive verb? the degree of difference? the price of a thing? the place where? time how long? the place to which? the agent of the participle in dus?

By what cases respectively are these words followed: avidus, condemno, poenitet, interest, miserior, parco, occurro, sub, proximus, doceo, fruor, noceo, usus signifying need, celo (conceal), licet, nubo, maledico, prope, clam, postridie?

In indirect discourse, how is the main proposition expressed? the imperative? When do relative clauses take the subjunctive? In how many ways may a purpose be expressed in Latin? Give examples.

IV.

Ita mobilitatem equitum, stabilitatem peditum in proellis praestant, ac tantum usu quotidiano et exercitatione efficiunt, uti in declivi ac praecipiti loco, incitatos equos sustinere, et brevi moderari ac flectere, et per temonem percurrere, et in jugo insistere, et inde se in currus citissime recipere consuerint.

Ităque, evocatis ad se undique mercatoribus, neque quanta esset insulae magnitudo, neque quae aut quantae nationes incolerent, neque quem usum belli haberent aut quibus institutis uterentur, neque qui essent ad majorum navium multitudinem idonei portus, reperire poterat.

Quin etiam jumentis, quibus maxime Galli delectantur, quaeque impenso paraut pretio, Germāni importatis his non utuntur; sed quae sunt apud eos nata, prava atque deformia, haec quotidiāna exercitatione, summi ut sint laboris, efficiunt-

Ităque Titum Labienum legătum in Treviros, qui proximi flumini Rheno sunt, cum equitatu mittit. Huic mandat, Remos reliquosque Belgas adeat atque in officio contineat, Germanosque, qui auxilio a Belgis arcessiti dicebantur, si per vim navibus flumen transire conentur, prohibeat.

Quum per eōrum fines triduum iter fecisset, inveniēbat ex captīvis, Sabim flumen ab castris suis non amplius milia passuum decem abesse: trans id flumen omnes Nervios consedisse, adventumque ibi Romanōrum exspectāre una cum Atrebatībus et Veromanduis, finitīmis suis: (nam his utrisque persuasērant, uti eandem belli fortūnam experirentur:) exspectāri etiam ab his Aduatucōrum copias, atque esse in itinēre: muliēies, quique per aetātem ad pugnam inutīles viderentur, in eum locum conjecisse, quo propter palūdes exercitui adītus non esset.

Give the rule for the mood of consuerint; haberent; prohibeat; feeisset; viderentur.

Give the rule for the case of usu; mercatoribus; institutis; pretio; Remos; auxilio; passuum.

Give a short account of the life of Caesar.

Examination Papers.

HOMER'S ILIAD.

JUNE, 1880

Homer's Iliad.

- I. State briefly (a) what you have learned about the question of the authorship of the Homeric poems, and (b) the estimation in which they were held by the Greeks themselves who lived after Homer.
- 2. State your opinion of the influence of those poems upon the literature (a) of the Greeks, and (b) of the Romans, and (c) upon the poetry and fiction of our own language.
- 3. State any difference you have found in respect to Homer's hexameters as compared with those of Virgil, especially in respect to (a) synalaepha, and (b) the quantity of final long vowels and diphthongs before other vowels.

4. Scan:

'Ως δη τοῦδ' ενεκά σφιν έχηβόλος ἄλγεα τεύχει, Ούνεκ' έγὰ χούρης Χρυσηίδος άγλά' ἄποινα Οὐχ ἔθελον δέξασθαι, ἐπὶ πολὺ βούλομα αὐτην Οἴχοι ἔχειν. Καὶ γάρ ῥα Κλυταιμνήστρης προβέβουλα.

5. TRANSLATE:

Τίς τ' ἄρ σφωε θεῶν ἔριδι ξυνέηχε μάχεσθαι; Αητοῦς χαὶ Διὸς υίος. ὁ γὰρ βασιλῆϊ χολωθείς, νοῦσον ἀνὰ στρατὸν ὡρσε χαχήν, ὀλέχοντο δὲ λαοί, οὕνεχα τὸν Χρύσην ἡτίμης' ἀρητῆρα 'Ατρείδης. ὁ γὰρ ἡλθε θοὰς ἐπὶ νῆας 'Αχαιῶν, λυσόμενὸς τε θύγατρα, φέρων τ' ἀπερείσι' ἄποινα.

στέμματ' έχων εν χερσιν έπηβόλου 'Απόλλωνος χρυσέφ ἀνὰ σχήπτρω, χαὶ ελίσσετο πάντας 'Αχαιούς, 'Ατρείδα δὲ μάλιστα δύω. χοσμήτορε λαῶν'

6. Translate:

"Ητοι δη ῶς εἰπὼν χατ' ἄρ ἔζετο τοῖσι δ' ἀνέστη Κάλχας Θεστορίδης, οἰωνοπόλων ὅχ' ἄριστος '
δς ἦδη τά τ' ἐόντα, τά τ' ἐσσόμενα, πρό τ' ἐόντα, καὶ νήεσσ' ἡγήσατ' 'Αχαιῶν "Ίλιον εἴσω,
ἢν διὰ μαντοσύνην, τήν οἱ πόρε Φοίβος 'Απόλλων '
δ σφιν ἐὔφρονέων ἀγορήσατο χαὶ μετέειπεν

TRANSLATE:

Θί μὲν ἔπειτ' ἀναβάντες ἐπέπλεον ὑγρὰ χέλευθα λαοὺς δ' 'Ατρείδης ἀπολυμαίνεσθαι ἄνωγεν. οἱ δ' ἀπελυμαίνοντο, χαὶ εἰς ἄλα λύματ' ἔβαλλον ἔρδον δ' 'Απόλλωνι τεληέσσας ἑχατόμβας ταύρων ἢδ' αἰγῶν παρὰ θῖν' άλὸς ἀτρυγέτοιο · χνίσση δ' οὐρανὸν ἴχεν, ἑλισσομένα περὶ χαπνῷ.

Translate:

^αΩς φάτο · μείδησεν δὲ θεὰ λευχώλενος ^αΗρη · μειδήσασα δὲ παιδὸς ἐδέξατο γειρί χύπελλον. αὐτὰρ ὁ τοῖς ἄλλοισι θεοῖς ἐνδέζια πὰσιν ψνοχόει, γλυχὸ νέχταρ ἀπὸ χρητῆρος ἀφύσσων. ἄσβεστος δ' ἄρ' ἐνῶρτο γέλως μαχάρεσσι θεοῖσιν, ὡς ἴδον ^αΗφαιστον διὰ δώματα ποιπνύοντα.

- 9. Give the theme and the stem of ξριδι, state how the former was obtained from the latter, and give both forms of the acc. sing., explaining the laws of euphony that developed them.
- 10. From what is νήεσσ', where made, and what are the grammatical terms to designate its form as here found?
- 11. From what is &\(\alpha\alpha\), what its root, what the Latin form of the root, what in the latter form corresponds to the spiritus in the Greek, and what

Historic Monographs Collection	
preposition can you name in each of these languages having the same correspondence, and how do you account for our having the verb save, but the noun salvation (as if from salve), instead of savation?	
12. Distinction of meaning between $\mu\epsilon\iota\partial d\omega$ and $\gamma\epsilon\lambda d\omega$? Derivation and etymon of asbestos, apollyon, apothecary and metamorphosis?	

Examination Papers.

RHETORIC.

JUNE, 1880.

RHETORIC.

- 1. You may give an outline of the subjects presented.
- 2. What qualities of style belong to diction?
- 3. What qualities of style belong to sentences?
- 4. Name the three special divisions of style pertaining to discourse.
- 5. Use discover and invent with precision; only and alone; sufficient and enough; effect and affect.
- 6. Give names to express: "occurring exactly at the same time;" "living about the same time;" "the power of not being pierced;" "in the act of recovering from illness."
 - 7. What is the principle of suspense? How caused?
 - 8. What are the most obvious violations of perspicuity?
 - 9. By what faults is the strength of a sentence lessened?
 - 10. How is the strength of a sentence promoted?
 - 11. How is emphasis secured?
 - 12. Describe the character of the epic poem. Name principal poems of this class.
 - 13. Define wit. Name prominent humorists.
 - 14. Name the principal writers of hymns.
 - 15. Scan:

Fair daffodils, we weep to see You haste away so soon.

Who is he that cometh Like an honored guest.

There was a gay maiden lived down by the mill. Ferry me over the ferry.

I will go to my tent and lie down in despair.

Name the variety of foot in each line.

- 16. You may furnish an example of each of the twelve most common figures of Rhetoric.
- 17. Give a list of poets, novelists, historians, essayists and editors.
 - 18. Point out the faults in the following:

He not only gave me advice but also help.

He was elected, but only was seen twice in the House.

He by no means despaired of seeing her come out of the cloud which now covered her with a meek and grateful heart.

He must endure the follies of others who will have their kindness.

As we walked through the streets whose sides were lined with maple trees whose leaves were just changing their color, we wondered whose taste had planted the town.

19. Correct:

I set out upon the road which my brother had taken with four post-horses.

The ocean is the great reservoir for receiving the waters of rivers.

What a pity it is that even the best should speak to our understanding so seldom.

20. It was a practice which no one knew the origin of.

The wonderful invention of Homer is what principally strikes us, on whatever side we contemplate him.

The writings of Webster are written with great strength and perspicuity.

Pope professed to have learned his poetry from Dryden, whom, whenever an opportunity presented itself, he praised through the whole period of his existence with a liberality which never varied; and perhaps his character may receive some illustration if a comparison be instituted between him and the man whose pupil he was.

Examination Papers.

ALGEBRA.

APRIL, 1880.

ALGEBRA.

- 1. What is meant by the terms positive and negative as applied to quantity?
 - 2. How is a negative quantity indicated?
 - 3. What is the relative value of negative quantities?
- 4. To what is a quantity having a negative exponent equal?
 - 5. Prove your answer.
 - 6. In $\frac{x^{-1}y^{-1}z^{-1}}{a}$ change the negative exponents to positive.
- 7. When will a negative result be obtained from the solution of a problem?
 - 8. Express, with terms, six symbols of relation.
 - 9. Give the meaning of each.
- 10. How are coefficients formed? How exponents?
- 11. Write the square root of the fraction b divided by the third power of a plus x, plus the fraction c divided by a-x equals the 4th root of the fraction a times the product of a and a divided by a square minus a square.
 - 12. What is the root of a quantity?
 - 13. Name the methods of expressing any root.
- 14. How do you raise a radical to a power whose exponent is the index of the root?
 - 15. Name the combination of terms in a binomial cube.
 - 16. Find the factors of $x^{s}-y^{s}$.
- 17. What simple principles underlie the rule for finding the G. C. D.?

- 18. Of what factors is the G. C. D. composed?
- 10. What factors are not found in it?
- 20. What factors must the L. C. M. contain? Find the L. C. M. of $6a^2m^4-am^2-1$ and $2a^2m^4+3am^2-2$.
 - 21. Interpret the forms $\frac{A}{o}$. $\frac{A}{\infty}$ and $\frac{o}{o}$.
 - 22. Expand (2a-3b)5.
 - 23. Write a surd. An imaginary root.
- 24. What formula does the problem of the couriers establish? Apply this formula to the solution of the problem: Two men were traveling on the same road to Bath: A at the rate of a miles per hour, and B at the rate of b miles per hour. At 6 o'clock A was m miles from Bath, and at 10 o'clock B was at a point n miles from Bath. Find the time when A passed B upon the road.
 - 25. Rationalize $\frac{5}{\sqrt[3]{3}-\sqrt[3]{2}}$
 - 26. Simplify $\frac{2\sqrt{3}}{3\sqrt[3]{72}} \frac{2\sqrt[3]{108}}{3(3)\frac{1}{2}}$
 - 27. Divide $a^{\frac{5}{6}} 2a^{\frac{1}{2}} + a^{\frac{1}{6}}$ by $a^{\frac{1}{8}} 1$.
 - 28. Find the value of x: $\sqrt[3]{5+x} + \sqrt[5]{5-x} = \sqrt[3]{10}$.
- 29. There is a number consisting of two digits; the number is equal to three times the sum of its digits; but if the number be multiplied by three, the product equals the square of the sum of its digits.
- 30. Three masons, A, B and C, are to build a wall; A and B jointly can build the wall in 12 days; B and C can build it in 20 days; A and C in 15 days. How many days would each require to build the wall, and in what time will they finish it if they all work together?

HONORARY.

A and B start from opposite points and travel toward each other; A at the rate of 3 miles an hour, and B at the rate of 4 miles an hour. At the same time C sets out with A, and travels at the rate of 5 miles an hour; after meeting

B, he turns back and travels until he meets A; he then finds that the whole time elapsed since starting is 10 hours. How far apart were A and B at the beginning.

A and B run a mile. First A gives B a start of 44 yards and beats him by 51 seconds; at the second heat A gives B a start of 1 minute and 15 seconds, and is beaten by 88 yards. In what time can each run a mile?

A general arranging his troops in the form of a solid square finds he has 21 men over; but attempting to add 1 man to each side of the square, finds he wants 200 men to fill up the square. Required, the number of men in a side at first, and the whole number of troops.

Examination Papers.

GEOMETRY

APRIL, 1880.

CEOMETRY.

I.

If a circle be described about a triangle, prove that the rectangle measured by two sides of the triangle is equivalent to the rectangle measured by the perpendicular let fall on the third side, and the diameter of the circumscribing circle.

Prove that the rectangle measured by the two diagonals of any quadrilateral inscribed in a circle, is equivalent to the sum of the two rectangles measured by the opposite sides of the quadrilateral.

Prove that the sums of the opposite sides of a quadrilateral circumscribing a circle are equal.

II.

How will you bisect a given angle?

From a given point, how will you draw a line parallel to a given line?

How will you inscribe a regular hexagon in a circle?

How will you construct a square that shall be equivalent to the difference of two given squares?

III.

Given, the radius of a circle unity, to find the areas of regular inscribed and circumscribed hexagons.

Given, the chord of any arc, to find the chord of one-half that arc, the radius of the circle being unity.

Two chords on opposite sides of the center of a circle are parallel, and one of them has a length of 20 and the other of 16 feet, the distance between them being 18 feet. What is the diameter?

If we assume the diameter of the earth to be 7,956 miles, and the eye of an observer be 40 feet above the level of the sea, how far distant will an object be that is just visible on the earth's surface?

IV

Define a diedral angle, a triedral angle, a polydral angle. What will determine the position of a plane?

Prove that if two lines are parallel, they will be equally inclined to a given plane.

Prove that if two straight lines be drawn in any direction through parallel planes, the planes will cut the lines proportionally.

Prove that any one of the three plane angles bounding a triedral angle is less than the sum of the other two.

Examination Papers.

ARITHMETIC.

APRIL, 1880.

ARITHMETIC.

- 1. A merchant, having bought a bill of goods, is offered the choice between paying the face, \$560, in 60 days, or paying cash at a discount of 3%; which will be more profitable for him, money being worth 10%?
- 2. Wishing to borrow \$1000 of a Southern bank that is discounting paper at 8%, I give my note for \$975, payable in 60 days; how much more will make up the required amount?
- 3. Required, the difference between the present worth and the proceeds of \$500, due 4 years 2 months hence, at 6%?
- 4. What is the face of a note at 90 days, the proceeds of which, when discounted at 6% at a bank, are 443.021?
- 5. What will be the cost of a sight draft on Philadelphia for \$550 at $\frac{3}{4}\%$ premium, and of a 30-day draft for \$2000 at 1% premium?
- 6. I received a draft for \$50, which cost \$\frac{2}{6}\$ to get it cashed; what should have been the face, that I might have realized \$50 ?
- 7. A man bought a house and lot for \$5000 on the 1st of March, agreeing to pay \$1250 down, \$1250 on the 18th of May, \$1250 on the 3d of July, and \$1250 on the 2d of October. On further consideration he decides to make but one payment; when will it be due?
- 8. Mr. Henry borrowed \$250 for 30 days and \$540 for 50 days; at the end of 24 days he paid \$300, and in 40 days he paid \$200; how long after the equated time should the balance be paid?

- 9. Mr. Green owes me the following notes: One for \$400, due July 5th; one for \$250, due Sept. 1st; one for \$850, due Oct. 20th. I wish to exchange them for two notes of \$750 each, one to fall due on May 1st; when should the other fall due?
- 10. Three persons enter into a partnership with a capital of \$4200; A puts in \$5 as often as B \$7 and C \$9; their annual gain is equal to A's stock; how much is each partner's gain?
- 11. A and B form a partnership, each putting in \$5000; at the end of three months A draws out \$1500 and B \$500, and each draws the same sum at the end of six months; at the end of nine months A draws out \$1000 and B \$1000; at the end of the year they dissolve partnership with a remaining capital of \$2100; how must they divide it?
- 12. The joint stock of a company was \$5400, which was doubled at the end of the year. A puts in $\frac{1}{2}$ for $\frac{3}{4}$ of a year, B $\frac{3}{4}$ for $\frac{1}{2}$ of a year, and C the remainder for one year. How much is each one's share of the entire stock at the end of the year?
- 13. A, B and C engage in manufacturing shoes. A puts in \$1920 for 6 months, B a sum not specified for 12 months, and C \$1280 for a time not specified. A receives \$2400 for his stock and profits, B \$4800 for his, and C \$2080. Required, B's stock and C's time.
- 14. A speculator invests \$2120 in grain, including 4% for commission and 2% for freight, then sells the grain at 20% advance on the cost price for a note at 60 days, which he gets discounted at a bank at 6%, and repeats this operation every 10 days; how much will his gains amount to in a month, if he invests the whole proceeds each time.
- 15. A grocer offers to take a young man in partnership on condition that if he advances \$2000 he will allow him \$620 per annum for his services and the use of his money, but if he advances \$3000, he will allow him \$680; what was the salary and what the per cent. offered for the use of the money?

Examination Papers.

English Literature.

APRIL, 1880.

ENGLISH LITERATURE.

- 1. What tribes formed the basis of the English race?
- 2. Whence did they come to Britain?
- 3. At what time?
- 4. What was the manner of their occupation of the island?
- 5. What were the results of it?
- 6. What became of the Celts who were displaced by these tribes?
- 7. What poetical production of the Anglo-Saxon period is said to have suggested to Milton the subject of his great epic poem?
 - 8. What facts are there to uphold this supposition?
 - 9. Give a sketch of the plan of the Canterbury Tales.
- 10. From whom is the idea of the plan said to have been borrowed?
- 11. In what respects is Chaucer's plan an improvement on the original?
 - 12. What excellence in making a pilgrimage its basis?
 - 13. How many tales was each pilgrim to relate?
 - 14. How many are related?
 - 15. How many of these are in prose?
 - 16. Which is regarded as the best of the tales?
- 17. Give a brief account of the origin of the English drama.
- 18. Describe the condition of the theatre and its stage settings in the time of Shakespeare.
 - 19. How many plays are usually ascribed to Shakespeare?
 - 20. Into what classes are they generally divided?
 - 21. What division does the text book make?

- 22. Why is this division better than the usual one?
- 23. What will account for the difference in the various texts of the plays?
 - 24. To whom else have these plays been ascribed?
 - 25. Upon what grounds?
- 26. What reasons can you give for not accepting this theory?
- 27. Over what period of time does the Elizabethan age extend?
 - 28. Name eight of the noted writers of that age.
- 29. Into what periods is the literary career of Milton divided?
 - 30. Name the productions belonging to each period.
 - 31. Give a general outline of the plan of Paradise Lost?
 - 22. What is the versification of the poem?
- 33. In the poems of which period did Milton employ rhyme?
- 34. What change of opinion, if any, did he undergo regarding its use?
 - 35. Name the poets belonging to the artificial school.
 - 36. Name those belonging to the Romantic school. .
- 37. What are some of the characteristics of these two schools?
 - 38. Name the poets of the Lake school.
 - 39. To what century does this school belong?
- 40. Give some of the characteristics of the poetry of this school.

HONORARY.

Write a brief essay upon any subject you choose connected with English Literature.

Examination Papers.

COMPOSITION AND ELOCUTION.

APRIL, 1880.

COMPOSITION AND ELOCUTION.

FIRST YEAR.

1-4. Under what four heads may all the parts of a letter be comprised?

5-8. Give principle directions regarding the correct form of each.

9-12. Mention four things that should be avoided in writing the body of a letter.

13. How should a letter of introduction be written and sent?

14. Write a letter of application for some situation.

15. What is a Circumlocution?

16-18. Give a circumlocution for the word clouds; for sleep; for Mrs. Partington.

19-21. Change the form of each of the following sentences so as to use a different preposition, while expressing the same idea: It agrees with my wishes. I confide in his honesty. This act derogates from his character.

22-24 Change the following into equivalent negatives: She is handsome. It is probable. The mystery was soon solved.

25-26. In the following, change the form of discourse from direct to indirect:

"Brothers and sisters, little maid, How many may you be?"

"How many? Seven in all," she said, And wondering looked at me.

27. What is a Period?

28-30. Change the following sentences into periods:

There is a mixture of good and evil in every human character and transaction.

A history that does not serve this purpose would be useless, though it may be filled with battles and commotions.

The crow would not have had to mourn the consequences of her silly vanity when too late, had she not lent a willing ear to the artful insinuations of the fox.

- 31-37. Write the feminine forms of the following nouns: actor, shepherd, duke, marquis, czar, sultan, executor.
- 38-43. Note six cases in punctuation in which the comma is required.
 - .4-43. Illustrate each.
- 50-51. What pauses are used after the words introducing a quotation?
 - 52-53. When is each appropriately used?
 - 54-63. Punctuate the following sentences:
- (a.) They in their turn stared at him and Master Bardell in his turn stared at everybody
 - (b.) How madly have I spoken
- (c.) I must inquire into the affair and if And if interrupted the farmer
 - (d.) The Cyprians asked me why I wept
- (e.) Straws lie upon the surface but pearls lie at the bottom.
- (f.) Avoid evil doers in such society an honest man may become ashamed of himself
- (g.) Shall a man obtain the favor of Heaven by impiety by murder by falsehood
- (h.) He was witty learned industrious everything but
- (i.) Virgil the chief poet among the Romans was fond of rural life
- (j.) The poet Shakespeare is now considered the greatest of writers ancient or modern
 - 64-76. Correct the following sentences:
- (a.) A wise man avoids the showing any excellence in trifles.
 - (b.) We expected that he would have arrived last night.

- (c.) The lady was the first who called.
- (d.) O fairest flower! no sooner blown but blasted.
- (e.) The opinion was more universal than was at first believed.
 - (f.) The nice apples are on the fartherest limb.
 - (g.) As far as I am able to judge, the book is well written.
 - (h.) Let this be divided between the three.
- (i.) The work is very inferior from what I expected; I am disappointed of it.
 - (j.) The boy was rewarded for his studying so diligently.
- (k.) He jumped to his feet; but nothing could be seen but the rippling water; but presently he saw a canoe.
- (l.) The fact is, the rules of emphasis come in, in interruption of your supposed law.
- (m.) A man of his sense should have a higher sense of honor.
- 77-88. Indicate the pronunciation of the following words: piquant, national, irrefutable, patron, overt, often, learned, literati, jocund, preface, juvenile, plebeian.
- 89-93. What can you say of the purpose and proper use of pauses and suspensive quantity in reading?
 - 94-95. What was Milton's great work? Gibbon's?
 - 96-98. Give the names of three American historians.
 - 99-100. What are the literary characteristics of Goldsmith?

Examination Papers.

HISTORY

APRIL, 1880.

HISTORY.

- 1. What was the influence of Rome upon the Celtic race?
- 2. Name the Germanic tribes which settled in Gaul, Spain, and England, respectively.
 - 3. When was Italy invaded by the Lombards?
- 4. Name two great Mayors of the Palace, and state for what each was noted.
- 5. What countries were subdued by the Saracens previ-
 - 6. Give a sketch of the career of Charlemagne.
- 7. What is meant by feudalism, and how did this system spread through the countries into which it was introduced?
 - 8. What was the origin of the temporal power of the pope?
- 9. Name the leaders, the date, and the result of each of the first three crusades.
- 10. Give the good and the bad side of the institution of chivalry.
- 11. What change in the languages of western Europe was going on during the Dark Ages?
- 12. What was the purpose of the Hanseatic league? of the Lombard league?
 - 13. What are sumptuary laws?
- 14. Name the different lines of emperors ruling Germany from the end of the Carlovingian rule to the close of the Middle Ages.
 - 15. When was Hugh Capet made king of France?

- 16. What was the origin of the Hundred Years' War between France and England, and how was it ended?
- 17. What was the beginning of the English House of Commons?
 - 18. What is meant by the War of the Roses:
- 19. What was the extent of the territory of Venice in the fifteenth century?
 - 20. When were the Moors finally driven from Spain?
- 21. How had the power of the Ottoman Turks extended previous to the taking of Constantinople?
- 22. When and by whom was the sea route to India finally opened up?
 - 23. What is meant by a centralized monarchy?
 - 24. How did a feudal differ from a standing army?
- 25. What was the immediate cause of the outbreak of opposition to the Catholic Church in the sixteenth century?
- 26. What was the course of Maurice of Saxony in the war that followed?
- 27. When was the Diet of Augsburg held, and what was its result?
- 28. Give an account of the growth of the differences between the English people and the Church of Rome in the time of Henry VIII.
 - 29. What was the cause of the war between Spain and the Netherlands, how did it end, and when?
 - 30. Who was the first king of the house of Bourbon, and what was the effect of his reign?
- 31. What was the purpose of the Supremacy Bill and the Act of Uniformity?
- 32. What was the reason of the execution of Mary, Queen of Scots?
- 33. What contrast exists between the Tudors and the Stuarts.
 - 34. Give a sketch of the career of Cromwell.
 - 35. What brought about the Revolution of 1688?
- 36. State the cause and the result of the Thirty Years' $\pmb{\mathsf{War}}.$
- 37. What comparison may be made between Richelieu and Wolsey?

- 38. Give an account of the war of Louis XIV. against Holland.
- 39. How did the Bourbon family obtain the Spanish throne?
 - 40. What was the character of the seventeenth century?
- 41. When and how did the House of Brunswick come to the English throne?
- 42. What important events took place in America during the early part of the reign of George III.?
 - 43. Give a sketch of the career of Frederick the Great.
 - 44. What was accomplished by Peter the Great?
- 45. What was the effect of the American war upon France?
- 46. What action was taken by the Tiers E'tat after the election of the deputies to the States General?
 - 47. What period is known as the Reign of Terror?
- 48. What was the general influence of the French Revolution?
- 49. What contest for power took place at the beginning of the Directory?
- 50. What is the characteristic of the literature of the eighteenth century?

Examination Papers.

Natural Philosophy

APRIL, 1880.

NATURAL PHILOSOPHY.

- 1. What is sound?
- 2. To what is pitch in sound due?
- 3. What is the relation of one musical tone to another, when the former is caused by one-half as rapid vibrations as the latter?
 - 4. In what manner is an echo occasioned?
- 5. Why are the equatorial portions of the earth warmer than the polar?
- 6. Name the processes by which heat is communicated in solids, liquids and fluids.
- 7. By what process does the heat of the sun reach the earth?
- 8. To what is the non-conductivity of heat, by fibrous substances, such as furs, woolens, feathers, etc., principally due?
- 9. Why is a dark coat warmer than a light colored one in the sunlight?
- 10. In what important particular does a low pressure differ from a high pressure steam engine?
- 11. Explain why moisture often accumulates on the surface of an ice-water pitcher during the summer.
- 12. Light, according to the undulatory theory, is a sensation occasioned in what manner?
- 13. What effect has a concave mirror upon parallel rays of light?
- 14. Why does an oar when partly immersed, in a slanting direction, into water, appear to be broken at the point of immersion?
- 15. Name the kind of a lens you would select for a burning glass?
- 16. Name the colors of the prismatic spectrum in the order of their refrangibility.

- 17. What is the difference between red and violet according to the undulatory theory of light?
- 18. How does the compound differ from the simple microscope?
- 19. What distinction do you make between a reflecting and a refracting telescope?
- 20. If a piece of glass or some resinous substance be rubbed, what property will be acquired by it?
- 21. State the general law of electrical attraction and repulsion.
- 22. When is a body positively electrified, according to Dr. Franklin's theory?
- 23. From the following named substances select the electrical conductors: gum shellac, platinum, water, guttapercha, silver, charcoal and the human body.
- 24. Draw a diagram illustrating the electrical induction occasioned by a positively electrified body when brought near one non-electrified.
- 25. Why, in working the frictional electrical machine, is it necessary to have the rubbers in electrical communication with the earth?
- 26. In charging the Leyden jar with positive electricity, by what process does the outer surface become electrified? State its electrical condition.
- 27. What is the ordinary electrical condition of eatmosphere?
- 28. When, where and by whom was lightning demonstrated to be an electrical phenomenon?
- 29. Why need we fear no harm from a flash of lightning after we have heard the thunder?
 - 30. What is the cause of the aurora borealis?
- 31. State two other names by which chemical electricity is designated.
- 32-33. Describe the two methods in regard to which inventors are experimenting with the electric light.
 - 34. What is thermo electricity?
- 35. What important property does the natural magnet possess ?
- 36. What are the poles of a magnet? In what position will a magnet, freely suspended, rest?

- Which pole of one magnet is attracted by the north pole of another?
 - How may you form two magnets out of one?
- If the head of a nail be brought near to the south pole of a magnet, what polarity will be acquired by the head and what by the point of the nail?
 - What part of a circle is a point of the compass?
- Why will not the dipping needle dip at the magnetic 41. equator?
 - 12. What is an electro magnet?
- The flash of a cannon was heard, and 15 seconds thereafter the sound was heard: at what distance from the hearer was the cannon?
- 44. At what distance was a flash of lightning, when the flash was seen 5 seconds before the thunder was heard?
- How long after a sudden shout will an echo be returned from a high wall 2240 feet distant?
- A certain musical string vibrates 256 times in one second; how many times must it vibrate to produce the octave above?
- 47. Fifty degrees centigrade thermometer will correspond to what temperature of the Reaumur?
- 48. On the supposition that the earth is three times as far from the sun as the planet Mercury, how many times warmer is it at the latter named planet than at the former?

A. is reading at a distance of one yard from a lamp light, and B. at a distance of two yards from the same light.

How much more light does A. receive than B.?

If a piece of iron, at a distance of one-hundredth of an inch from a magnet, be attracted with a force of one ounce, with what force will it be attracted at a distance of one-fiftieth of an inch?

HONORARY.

1. Sixty-eight degrees Fahrenheit's thermometer corresponds to what degree Centigrade?

Forty degrees Reaumur's thermometer corresponds to

what deegree Fahrenheit?

State and illustrate the law of sines for the refraction of light.

Illustrate the course of a ray of light when passing into, through and out of a prism.

Examination Papers.

GEOLOGY

CEOLOGY.

- 1. Of what does geology treat?
- 2. Why are rocks containing quartz so enduring?
- 3. The mineral calcite enters into the formation of what kind of rocks?
 - 4. How does pyrite differ, chemically, from chalcopyrite?
- 5-7. In what manner were the following kinds of rocks made? Sandstone, conglomerate, and shale.
- 8. Name the three kinds of rocks formed from the combination of quartz, feldspar and mica.
- 9. What rocks underlie the stratified? State the manner of their formation.
- 10-11. State two other names by which the stratified rocks are called; and the reasons for these names.
 - 12. How does marble differ from ordinary limestone?
- 13. The animal relics that have contributed the most to limestone formations, are what?
- 14. What are diatomes; and what rocks have they been instrumental in forming?
- 15. What are the two ways in which running water is, performing geological work?
 - 16. In what manner are volcanic mountains formed?
- 17. What is the valley of the Mississippi, and how was it formed?
 - 18. Describe the process by which a canon is formed.
- 19. How have the great mountain chains of the earth been formed?
- 20. How was the heat for the metamorphism of the rocks occasioned?
 - 21. Why are not all stratified rocks conformable strata?
 - 22. What time does historical geology comprise?
- 23. Enumerate the four grand sections of historical geology.

- 24. Enumerate the sub-kingdoms of animal life, classified as invertebrates.
- 25. The first condition of the earth about which geology gives any hint was what?
- 26. What geological evidence have we that the earth was at one time entirely covered with water?
- 27. Describe the form of North America at the close of archæan time.
 - 28. Why are archæan rocks mostly metamorphic?
- 29. How have geologists been able to determine that the Adirondacks are the oldest mountains of North America?
- 30. Why do we infer from the existence of archæan limestone that animals were living during that age?
- 31. What is believed to have been the first kind of vegetable life?
- 32. Name the order in which the sub-kingdoms of animal life appeared on the earth?
- 33. During what geological age did vertebrates make their first appearance? And in what respect did they differ from most modern vertebrates?
- 34. Where does the carboniferous age belong in historical geology?
- 35. Why is more anthracite than bituminous coal found in mountainous regions than elsewhere?
- 36. What are amphibians and what type of animal life did they introduce?
- 37. Name the two ages and the three sub-divisions of Cenozoic time.
- 38. What were the first mammals? Name a modern representative.
- 39. What is believed to have occusioned the cold of the Glacial period?
- 40. To what extent did the glaciers cover North America?
- 41. How may the direction of glacial movement be determined?
- 42. What physical cause terminated the existence of the glaciers of the glacial period?

- 43. What evidence have we in this locality of glacial work?
- 44. When the brute mammals reach their maximum in numbers and size?
- 45. What evidence have we for believing that man was in existence at the close of the glacial period?
- 46. What do the oldest remains of man lead us to infer in regard to his physical development?
- 47. What does geology teach us in regard to the age of the earth?
- 48. Geology teaches us what in regard to the general progress of life from its beginning to the present time?
- 49. What are the probabilities for the existence of species of animal life, more highly developed than man?
 - 50. What is the stone age of man?

Examination Papers.

PHYSIOLOGY AND HYGIENE.

PHYSIOLOGY AND HYGIENE,

- 1. To what are the hardness and elasticity of the bones respectively due?
- 2. Which of the bones of the body are hollow; and what is the mechanical advantage gained thereby?
- 3. Of what advantage are the curvatures of the spinal column?
 - Describe the functions of the muscles.
 - 5. The hip joint is an example of what kind of a joint?
- 6. In order that exercise may be the most beneficial how should it be taken?
 - 7. What is food?
- 8. Name the three most abundant, inorganic substances of the food.
 - 9. Name the organic ingredients of the food.
- 10. Which of the food ingredients are decomposed in the interior of the body?
 - 11. What substances will convert oil into an emulsion?
 - 12. Of what use is the adipose tissue in the body?
- 13. Name the ingredients of the food for which the following substances are valuable: rice, eggs, cheese and butter.
 - 14. Why is milk such a valuable article of food?
 - 15. What is the object of digestion?
- 16. State the function of the stomach in the digestion of the food.
 - 17. Where and by what is starch digested?
 - 18. What is the function of the pancreatic gland?
 - 19. By what is the food absorbed?
- 20. What becomes of the digestive fluids during the digestion and absorption of the food?
 - 21. State the two functions of the liver.
 - 22. Name the ingredients of the blood.
 - 23. What must be done when a large artery is wounded?
- 24. Through what passages does the air gain admission to the air vesicles of the lungs?
 - 25. Name the muscles concerned in the act of inspiration.

- 26. How does expired differ from pure air?
- 27. What two things are essential to the complete ventilation of an apartment?
- 28. State the reason why impure air from the lungs is to be found more abundantly in the lower than the upper part of a room?
 - 29. Enumerate the organs for the circulation of the blood.
 - 30. Name and locate the cavities of the heart.
 - 31. Whither does the blood go from the right ventricle?
 - 32. What veins carry arterial blood?
 - 33. What becomes of the arteries when they arrive at the different organs of the body?
 - 34. What is the function of the perspiration?
 - 35. State whether the gastric juice is a secretion or an excretion; and give the reason for your statement.
 - 36. By what system is the harmonious action of the bodily organs secured?
 - 37. Name the different kinds of nervous filaments in the nervous system.
 - 38. Paralysis of the lower half of the body would indicate difficulty at what part of the nervous system?
 - 39. Why does paralysis of one side of the body indicate
 - injury or disease at the opposite side of the brain?

 40-11. State the two principal functions of the fifth pair of nerves.
 - 42. How is the pitch of the human voice regulated?
 - 43. Name and state the function of the largest division of the human brain.
 - 44. When does a nervous impression become a conscious sensation?
 - 45. Over what functions does the sympathetic system of nerves preside?
 - 46. Enumerate the special senses.
 - 47. Why are the eyes not to be regarded as two distinct organs, but as one double organ?
 - 48. How are sonorous vibrations transmitted from the tympanum to the oval fenestra of the ear?
 - 49. What is the condition of the skeleton at birth?
- 50. State the length of each of the three stages of life from birth up to the period of the full bodily development.

Examination Papers.

VIRGIL

VIRGIL.

- 1. Give a brief epitome of the subjects narrated in books 3, 4 and 5.
- 2. What three elements are included in the term accent, as commonly employed in our own language, and which one of those elements was signified by the same term, as used by the Greeks and Romans?
- 3. Since this difference in the use of the term accent constitutes a fundamental difference in the mechanical structure of ancient and modern verse, why were the first results of verse making on the modern method called "proses"?
- 4. Where do we find the remains of the earliest attempts of this kind, in what language have the greatest number been preserved, and where are they still chanted and read?
- 5. How can we trace the origin and progress of rhyme in this connection, and for what does rhyme seem to have been a partial compensation?
- 6. About what time did Tzetzes of Constantinople make soms "proses" of this sort in Greek?
- 7. (a.) What is the reason that English hexameters do do not succeed? (b.) What prevents the successful use of spondees in English verse?

8. Scan:

Tum vero ancipiti mentem formidine pressus Obstupui, steteruntque comae et vox fancibus haesit. Hunc Polydorum auri quondam cum pondere magno.

Mark the verse caesuras, and point out the synaloephae and the echthlipsis.

9. Translate:

Terra procul vastis colitur Mavortia campis. Thraces arant, acri quondam regnata Lycurgo, Hospitium antiquum Trojae sociique Penates, Dum fortuna fuit. Feror huc, et litore curvo Moenia prima loco, fatis ingressus iniquis, Aeneadasque meo nomen de nomine fingo. Sacra Dionaeae matri divisque ferebam Auspicibus coeptorum operum, superoque nitentem Coelicolum regi mactabam in litore taurum. Forte fuit juxta tumulus, quo cornea summo Virgulta et densis hastilibus horrida myrtus.

10. Translate:

Oceanum interea surgens Aurora reliquit. It portis jubare exorto, delecta juventus: Retia rara, plagae, lato venabula ferro, Massylique ruunt equites et odora canum vis. Reginam thalamo cunctantem ad limina primi Poenorum exspectant, ostroque insignis et auro Stat sonipes ac frena ferox spumantia mandit.

11. Translate:

Est procul in pelago saxum spumantia contra Litora, quod tumidis submersum tunditur olim Fluctibus, hiberni condunt ubi sidera Coti; Tranquillo silet, immotaque attolitur unda Campus et apricis statio gratissima mergis. Hic viridem Aeneas frondenti ex ilice metam Constituit signum nautis pater, unde reverti Scirent et longos ubi circumflectere cursus.

- 12. Derive English words in common use from auspex, colo, dignor, relinquo, ferox, and give the radical force of each.
- 14. Derive from the Latin—giving the radical sense of each—the following English words: ingredient, insignificant, consonantal, culture, intellect, confuse, audience, egregious, accessible, final.

Examination Papers.

CICERO

CICERO.

T.

What was the occasion of the oration pro Archia?
When was it delivered?

Before whom?

Where?

In what respects does it differ in its method from orations as usually delivered in a questio legitima and judicium publicum?

H.

Translate: Quaeres a nobis, Grati, cur tantopere hoc homine delectemur. Quia suppeditat nobis, ubi et animus ex hoc forensi strepitu reficiatur et aures convicio defessae conquiescant. An tu existimas aut suppetere fiolis posse, quod quotidie dicamus in tanta varietate rerum, nisi animos nostros doctrina excolamus, aut ferre animos tantam posse contentionem, nisi eos doctrina cadem relaxemus? Ego vero fateor me his studiis esse deditum. Ceteros pudeat, si qui ita se literis abdiderunt, ut nihil possint ex iis neque ad communem afferre fructum neque in adspectum lucemque proferre; me autum quid pudeat, qui tot annos ita vivo, judices, ut a nullius unquam me tempore aut commodo aut otum meum abstraxerit aut voluptas avocarit aut denique somnus retardarii?

What is the subject of suppetere?

In what construction is ceteros?

What kind of action does vivo here express?

What is the composition of the words abstraxerit, avocarit, retardarit?

III.

Translate: Quam multos scriptores rerum suarum magnus ille Alexander secum habuisse dicitur! Atque is tamen, quum in Sigeo ad Achillis tumulum adstitisset, "O fortunate," inquit, "adolescens, qui tuae virtutis Homerum praeconem inveneris!" Et vere; nam nisi Ilias illa exstitisset, idem tumulus, qui corpus ejus contexerat, nomen etiam obruisset. Quid? noster hic Magnus, qui cum virtute fortunam adaequavit, nonne Theophanem Mitylenaeum, scriptorem rerum suarum, in concione militum civitate donavit, et nostri illi fortes viri, sed rustici ac milites, dulcedine quadam gloriae commoti, quasi participes ejusdem laudis, magno illud clamore approbaverunt?

In what construction is adolescens? What are the principal parts of contexerat? What answer does nonne expect? What does illud represent?

IV.

Give a brief account of the conspiracy which led to the orations in Catilinam.

What was the immediate cause of the first oration?

What special interest attaches to it?

When was it delivered?

Where?

Before whom?

V.

Translate: Magna diis immortalibus habenda est atque huic ipsi Jovi Statori, autiquissimo custodi hujus urbis, gratia, quod hanc tam tetram, tam horribilem, tamque infestam rei publicae pestem toties jam effugimus. Non est saepius in uno homine summa salus periclitanda rei publicae. Quamdiu mihi, consuli designato, Catilina, insidiatus es, non publico me praesidio, sed privata diligentia defendi. Quum proximis comitiis consularibus me consulem in campo et competitores tuos interficere voluiti, compressi conatus nefarios tuos amicorum praesidio et copiis, nullo tumultu publice concitato: denique, quotiescumque me petisti, per

me tibi obstiti; quamquam videbam perniciem meam cum magna calamitate rei publicae esse conjunctam. Nunc jam aperte rem publicam universam petis: templa deorum immortalium, tecta urbis, vitam omnium civium, Italiam [denique] totam ad exitium et vastitatem vocas.

Why is Magna the first word in its sentence? In what construction is mihi?

What difference in meaning between universus and omnis? What figures of rhetoric occur in the last sentence?

VI.

Nunc illos, qui in urbe remanserunt, atque Translate: adeo [qui] contra urbis salutem omniumque vestrum, in urbe a Catilina relicti sunt, quamquam sunt hostes, tamen, quia nati sunt cives, monitos eos etiam atque etiam volo. Mea lenitas si cui adhuc solutior visa est, hoc exspectavit, ut id quod latebat, erumperet. Quod reliquum est, jam non possum oblivisci, meam hanc esse patriam, me horum esse consulem, mihi aut cum his vivendum aut pro his esse moriendum. Nullus est portis custos, nullus insidiator viae: si qui exire volunt, connivere possum. Qui vero se in urbe commoverit, cujus ego non modo factum, sed inceptum ullum conatumve contra patriam deprehendero, sentiet in hac urbe esse consules vigilantes, esse egregios magistratus, esse fortem senatum, esse arma, esse carcerem, quem vindicem nefariorum ac manifestorum scelerum majores nostri esse voluerunt.

In what construction is illos? In what construction is mihi? What is the subject of sentiet? In what construction is vindicem?

ROCHESTER FREE ACADEMY.

Examination Papers.

 $C \mathscr{E} S A R$

CÆSAR.

1. Ipse. Divitiàcum Arduum magnopére cohortătus, docet, quanto opère rei publicae communisque salutis intersit, manus hostium distineri, ne cum tanta multitudine uno tempore confligendum sit.

Eo de media nocte Caesar, iisdem ducībus usus qui nuncii ab Iccio venērant, Numīdas et Cretas sagittarios et funditōres Baleāres subsidio oppidānis mittit; quorum adventu et Remis cum spe defensionis studium propugnandi accessit, et hostībus cādem de caussa spes potiundi oppīdi discessit.

Pro his Divitiàcus facit verba: Bellovàcos omni tempore in fide atque amicitia civitātis Aeduae fuisse: impulsos ab suis principibus, qui dicerent, Aeduos a Caesare in servitūtem redactos omnes indignitātes contumeliasque perferre, et ab Aeduis defecisse et populo Romāno bellum intulisse.

Give rule for the government of salutis; tempore; ducibus; subsidio; hostibus; Romano. Give rule for the mood of intersit: dicerent.

2. Caesări omnia uno tempore erant agenda: vexillum proponendum, quod erat insigne, quum ad arma concurri oporteret; signum tuba dandum; ab opere revocandi milîtes qui paullo longius aggeris petendi caussa processerant, arcessendi; acies instruenda; milîtes cohortandi; signum dandum: quarum rerum magnam partem temporis brevitas et successus hostium impediebat.

Horum adveentu tanta rerum commutatio est facta, ut nostri, etiam qui vulneribus confecti procubuissent, scutis innixi, proelium redintegrărent; tum calones, perterritos hostes conspicăti, etiam inermes armātis occurrérent; equites vero, ut turpitudinem fugae virtute delerent, omnubus in locis pugnae se legionariis militibus praeferrent.

What is denoted by agenda? Give rule for the government of aggeris; rerum; scutis. What construction is used after verbs of saying? Name the case that follows obliviscor; ignosco.

3. Quo in consilio, quum tantum repentini periculi praeter opinionem accidisset, ac jam omnia fere superiora loca multitudine armatorum completa conspicerentur, neque subsidio veniri, neque commeātus supportari, interclusis itineribus, possent, prope jam desperata salute, nonnullae hujusmodi sententiae dicebantur; ut impedimentis relictis, eruptione facta, iisdem itineribus, quibus eo pervenissent, ad saluten contenderent. Majori tamen parti placuit, hoc reservato ad extrêmum consilio, intérim rei eventum experiri et castra defendere.

Give rule for the government of itineribus; parti; for the mood of possent; contenderent. Construe and give the meaning of interclusis itineribus. What classes of words of the third declension form their ablative in i only?

4. Namque ipsorum naves ad hunc modum factae armataeque erant: carīnae aliquanto planiores quam nostrarum navium, quo facilius vada ac decessum aestus excipere possent; prorae admodum erectae atque item puppes, ad magnatudinem fluctuum tempestatumque accommodātae; naves totae factae ex robore ad quamvis vim et contumeliam perferendam; transtra pedalibus in latitudinem trabibus confixa clavis ferreis digiti pollicis crassitudine; ancorae pro funibus ferreis catēnis revinctae; pelles pro velis alutaeque tenuitar confectae; hae sive propter lini inopiam atque ejus usus inscientiam, sive eo, quod est magis verisimile, quod tantas tempestates Oceāni tantosque impētus ventorum sustineri ac tanta onera navium regi velis non satis commode posse arbitrabantur.

Give rule for the government of crassitudine; eo; onera. How is the place to which expressed in Latin? The price? The time when? The place where?

Examination Papers.

LATIN GRAMMAR.

LATIN GRAMMAR.

- 1. Give the principal parts of ago, capio, duco, erudio, fugio, habeo, jucio, pono, teneo, venio.
- 2. Give a synopsis of voco, in the subjunctive mode of both voices.
- 3. Give a synopsis of doceo, in the passive voice, indicative mode
- 4. Give the active voice, imperative and infinitive modes of reac.
 - 5. Give the participles, active and passive, of punio.
 - 6. What is a semi-deponent verb?
 - 7. Give the active, subjunctive, present of volo, eo, fero, fio.
 - 8. Name the classes of impersonal verbs.
- 9. Give a synopsis of the first and the second periphrastic conjugations of tego.
 - 10. Translate into English:
- 1. Dicit puer se laudatum esse. 2. Non est dubium quin discipulus a me bene monitus sit. 3. Virtus homines avocat a peccando. 4. Cives maxime gavisi sunt. 5. Milites lapides ac tela coniciebant. 6. Ferri laborem consuetudo docet. 7. Fiat lux et lux facta est. 8. Tibi licet id facere. 9. O rex, qui regnas, honora bonos cives. 10. Alter militum fugit.
 - 11. Translate into Latin:
- 1. Caesar hastened across the river. 2. A wolf ran from the forest across the field. 3. Come with me. 4. The boys were cast into the Tiber. 5. Caesar was not able to defend the city. 6. Do you prefer to read or to write? 7. The king went to the town. 8. Caesar was the conqueror of the Gauls. 9. The wise educate their children. 10. They saw the cloaks which they had made.

12. Translate the following:

Lupus insecutus est agnum. At hic in templum confugit. Lupo autem agnum invocante, et minitante pontificem eum sacrificaturum, respondit agnus. "Mallem quidem deo sacer esse quam a te trucidari."

- 13. Parse lupo.
- 14. Give the principal parts of insecutus est, confugit, and sacrificaturum.
 - 15. Translate the following:

Jupiter autem, iratus ejus avaritiae, mutavit eum in animal quæ nunc formica vocatur.

- Construe the sentence just translated.
- 17. Translate the following:

Agricola senex, cum mortem sibi appropinquare sentiret, filios convocavit—qui, ut fieri solet, interdum inter se discordes erant—et fascem virgularum afferri jussit.

- 18. Dispose of sibi, qui, and fascem.
- 19. Parse convocavit.
- 20. Translate:
- "Remus itaque a rege Numitori ad supplicium traditus est: at Numitor, considerato adoloscentis vultu, haud procul erat quin nepotem agnosceret."
 - 21. Dispose of rege, Numitori, vultu.
 - 22. Translate:
- "Sic posthac malo afficietur, quicumque transiliet mœnia mea."
 - 23. Parse posthac.
 - 24. Translate:

Datur signum, infestisque armis terni juvenes, magnorum exercituum animos gerentes, concurrunt.

- 25. Give the principal parts of concurrent.
- 26. Parse que.
- Dispose of armis.
- 28. Translate:

Is quamvis integer, quia tribus impar erat fugam simulavit, ut singulos per intervalla secuturos separatim aggrederetur.

29. Construe, fugam simulavit, ut singulos per intervalla secuturos separatim aggrederetur.

30. What is the gender of intervalla, of fugam, of is, of secutions.

31. Translate:

Alterum deinde, priusquam tertius posset consequi, interfecit.

32. To what class of verbs does consequi belong?

33. Give an English derivative from posset, from tecit, from consequi.

34. Translate:

Princeps ibat Horatius, trium fratrum spolia prae se gerens.

35. Parse se.

36. What part of speech is princeps?

37. Give the principal parts of ibat.

38. Translate:

Proximi sunt Germanis, qui trans Rhenum in colunt.

39. Parse qui.

40. What is the comparative of proximi?

Examination Papers.

GREEK LESSONS.

Greek Lessons.

- 1. How many and what are the terminal forms of contract verbs?
- 2-3. Write the inflection of the act. indic. present of some verb of the second form, and do. of one in the third form.
- 4. State where the following verbs are made, and analyze the first two: "Ηρχετο, Ανέψγον, Έχποριοῦσι Μαγεῖται, 'Απαγγελῶ.
- 5. Write the stem of $\Gamma \dot{\nu} \psi$, the gen. s. of $A \dot{i} \xi$, dat. s. of $\theta \rho \dot{i} \xi$, acc. s. of $\dot{\epsilon} \lambda m \zeta$, and the dat. pl. of $\dot{\epsilon} \theta \dot{\nu} \dot{i} \xi$.
- 6. Derive and give the etymon—radical meaning—of some English word in common use, from the stem of each of the following Greek words: $\theta \lambda \dot{\epsilon} \phi$, $\theta \dot{\alpha} \dot{\epsilon}$, $\theta \dot{\gamma} \rho$, ' $P \dot{\epsilon} c$, $K \dot{\omega} \omega \nu$.
- 7. Give the etymological definition of Rhinoceros, Trichotomist, Angel, Chiromancy, Tripoli(ς), Caustic.
- 8. Give the tense signs for the future and first aorist, active and middle, and for the perfect and pluperfect active.
- 9. Explain the difference in form between the imperfect and the second agrist tenses, and illustrate by giving the Greek word for flee in each of those tenses, and give the meaning of each.

O. TRANSLATE:

'Εχποριούσε τὴ στρατεὰ μεσθόν. Οὐ δυνήσεται ταχέως πορεύεσθαι· ἴσως δὲ χαὶ τῶν ἐπιτηδείων σπανιεῖ. "Ωρα δὲ

βουλεύεσθαι, ὅπως ὡς χάλλιστα ἀγωνιούμεθα. 'Υμᾶς, ὁπόταν γαλήνη ἢ, ἐμβιβῶ. Οὺ μαχεῖται δέχα ημερῶν. 'Ησπάζετο αὐτὸν, ὡς ἀποπλευσούμενος ἤδη.

11. TRANSLATE:

Αχούσας δὲ ταῦτα ὁ Φαλῖνος ἐγέλασεν. 'Ο δὲ Κῦρος ὁπολαβῶν τοὺς φεύγοντας, συλλέξας στράτευμα, ἐπολιόρχει Μίλητον χαὶ χατὰ γῆν χαὶ χατὰ θάλατταν. Καὶ δς προσελθῶν τῷ Σεύθη δεῖται, μὴ ἀποχτεῖναι τὸν παῖδα. 'Ο δ' ἀνὴρ αὐτῆς λαγῶς ψχετο θημάσων. 'Εξέπλει ὡς πολεμήσων τοῖς ὁπὲρ Χερβονήσου χαὶ Περίνθου θραξίν.

12. TRANSLATE:

'Ο Κύρος απέπεμπε τους γιγνομένους δασμούς βασιλεί έχ τῶν πόλεων, ὧν Τισσαφέρνης ἐτύγχανεν ἔχων. Καὶ αὕτη αὐ ἄλλη πρόφασις ἢν αὐτῷ τοῦ ἀθροίζειν στράτευμα. 'Ενταῦθα Κύρος, Σιλωνον καλέσας, τὸν 'Αμβρακιώτην μάντιν, ἔδωκεν αὐτῷ δαρεικούς τρισγιλίους.

13. TRANSLATE:

They asked Cleanor for guides. Meno the Thessalian took the lead of the left wing, and Clearchus, the Lacedæmonian exile, of the right. On the next day he sent for two companies of Meno's army. Thereupon he commands his attendants to cut off the head and the right hand of Cyrus. I sent this messenger to Babylon to Artaxerxes.

14. TRANSLATE:

It was evident that the horsemen were somewhere near. These animals the king sometimes chased. There is immediate need of an interpreter. Epyaxa sends her own interpreter to Cyrus. They made us interpreters. The horsemen proceed to the king. They thought that the letters were ready for them. He wrote a letter to Belesys, who had been ruler of Syria.

Examination Papers.

XENOPHON'S ANABASIS.

XENOPHON'S ANABASIS.

- I. Give a summary of the more important events parrated in the second book.
- 2. Explain how Clearchus's failure to comply with Cyrus's order to bring his army down against the center of the king's force, resulted in the death of Cyrus and the defeat of his barbarian army.
- 3. Make a diagram with a few lines, to show how you suppose the two forces were arranged for the battle at Cunaxa, indicating the center, the right and left wing of each, and the position of the Greeks and of the river.
- 4. Explain how Xenophon came to be with Cyrus's army, and state briefly the advice that Socrates gave him in reference to joining the expedition, and the reason for such advice.
- 5. How did the Persians contrive to get the Grecian generals into their power so as to put them to death?
- 6. TRANSLATE: A friend of mine. My friend. Not my friend, but yours. Both my friend, and the merchant's. What has the merchant? He has purple cloaks, and golden cups. The silver cup is not so beautiful as the golden one. Whose is this golden cup? It is the merchant's. It is neither mine nor the merchant's; it is the laborer's. The purple cloaks are not so beautiful as the white ones. Who lies

here? The cow lies here. Not on the roof, nor on the table, but in the pasture. The ball falls onto the table, but does not lie on the table. The ball does not lie on the chest, but in the chest. The apples do not fall onto the basket, but into the basket.

7. TRANSLATE:

Αχούσας ταύτα έλεξεν ο Κύρος · " Αλλ' έστι μὲν ήμῖν, ὁ ἄνδρες, ἡ ἀρχὴ ἡ πατρφία, πρὸς μὲν μεσημβρίαν, μέχρι οὐ διὰ χαύμα οὐ δύνανται οἰχεῖν ἀνθρωποι · πρὸς δὲ ἄρχτον, μέχρι οὐ διὰ χειμῶνα · τι δ' ἐν μέσφ τούτων πάντα σατραπεύουσιν οί τοῦ ἐμοῦ ἀδελφοῦ φίλοι. "Ην δ' ἡμεῖς νικήσωμεν, ἡμᾶς δεῖ τοὺς ἡμετέρους φίλους τούτων ἐγχρατεῖς ποιῆσαι. " Ձστε οὐ τοὕτο δέδοικα, μὴ οὐχ ἔχω ὅ τι δῶ ἑχάστψ τῶν φίλων, ἄν εὖ γένηται, ἀλλὰ μὴ οὐχ ἔχω (κανοὺς, οἰς δῶ. ' Υμῶν δὲ τῶν 'Ελλήνων και στέφανον ἑχάστψ χρυσοῦν δώσω."

8. Translate:

Ήν δὲ αὕτη ή στρατηγία οὐδὲν ἄλλο δυναμένη, ἢ ἀποδράνα ἢ ἀποφυγεῖν ή δὲ τύχη ἐστρατήγησε χάλλῖον. Ἐπεὶ γὰρ ήμέρα ἐγένετο, ἐπορεύοντο, ἐν δεξιὰ ἔχοντες τὸν ῆλιον, λογιζόμενοι ἤξειν ἄμα ήλίφ δύνοντι εἰς χώμας τῆς Βαδυλωνίας χώμας. Καὶ τοῦτο μὲν οὐχ ἐψεὐσθησαν. ἔτι δὲ ἀμφὶ δείλην ἔδοξαν πολεμίους ὁρὰν [ππέας : χαὶ τῶν τε Ἑλλήνων, οῦ μὴ ἔτυχον ἐν ταῖς τάξεσιν ὄντες, εἰς τὰς τάξεις ἔθεον, χαὶ Αριαῖος (ἐτύγγανε γὰρ ἐφ ἀμάξης πορευόμενος, διότι ἐτέτρωτο) χαταβάς ἐθωραχίζετο, χαὶ οῖ σὺν αὐτῷ.

. TRANSLATE:

Μένων δὲ ὁ Θετταλὸς δηλος ἡν ἐπιθυμῶν μὲν πλουτεῖν ίσχυμῶς, ἐπιθυμῶν δὲ ἄρχειν, ὅπως πλείω λαμβάνοι, ἐπιθυμῶν δὲ τιμὰσθαι, ἴνα πλείω χερδαίνοι: φίλος τε ἐδούλετο εἰναι τοῖς μέγιστα δυναμένοις, ἴνα ἀδιχῶν μὴ διδοίη δίχην. 'Επὶ δὲ τὸ χατεργάζεσθαι ὧν ἐπιθυμοίη, συντομωτάτην ψετο όδὸν εἰναι διὰ τοὺ ἐπιορχεῖν τε χαὶ ψεύδεσθαι χαὶ ἐξαπατὰν τὸ δ΄ ὁπλοῦν χαὶ τὸ ἀληθὲς ἐνόμιζε τὸ αὐτὸ τῷ ἡλιθίφ εἰναι.

- 10. Give the principal parts of ἀχούσας, the gender, number, case and agreement of μέσψ and ἐχανοὺς, and the subject of γένητα, in 7.
- 11. Where are ἐψεύσθησων and ἐτέτρωτο found? Give the principal parts of the latter.
- 12. (a.) Derive and give the etymon of phylactery, dogma, Megalippos, Hecatompolis, aegis, panther, cynic, pandemonium, pantomime and Polynesia; and (b.) give some English word, with its true meaning, from each of the following: Σοφός, Έγω, 'Αυτός, 'Ακούω, Λίθος.

Examination Papers.

CHEMISTRY

NOVEMBER, 1879.

Historic Monographs Collection

CHEMISTRY

- How does chemical affinity differ from adhesion?
- How does an atom differ from a molecule?
- Of what use are symbols in chemistry?
- The molecular weight of a compound is equal to what?
- How do you know that potassium iodide is a 5. binary compound?
- Write the name and the symbol of the binary compound that may be formed from sodium and chlorine.
- How does an oxacid differ from a hydracid in its chemical composition?
 - Name the elements composing phosphoric acid.
 - What are the constituents of hydrofluoric acid? 9.
- State the class of acids to which the acids mentioned in the eighth and ninth questions respectively belong.
- Name the anhydrides that may be formed from sulphuric and nitric acids.
- Name the salt that may be formed from zine and sulphuric acid, also that from zine and hydrochloric acid.
- Name the metal and the acid concerned in the formation of sodium sulphate; also the acid and the salt in sodium sulphite.
- How is oxygen liberated from potassium chlorate (K Ol O₃)?
 - 17. Name the compound that remains.
 - What is ozone?

- 13. What objects would escape combustion if the air were undiluted oxygen?
- 20. In what respect is nitrogen very different from oxygen?
- 21. Of what use is hydrogen in connection with atomic weight?
- 22. How do you account for the fact that the diamond and charcoal, which are the same in composition, are so very different in their properties?
- 23. Explain the action of chlorine as a bleaching agent?
 - 24. Why do eggs discolor silver spoons?
 - 25. Describe Marsh's test for arsenic.
- 26. How is lime (Ca O) obtained from limestone (Ca C O_)?
- 27. What precaution should be observed in the use of lead water pipes?
 - 28. In what way is mercury of use in extracting the precious metals from the ores?
 - 29. Name the four elements entering most largely into the formation of organic bodies.
 - 30. How does hard eider differ, chemically, from sweet eider?
 - 31. Explain the action of yeast in bread making.
 - 32. Of what use are mordants in dyeing?

The atomic weight of the elements mentioned in the following problems are

O 1. H 1. S 32. Ka 39. N 14. Ca 40.

Ct 35.5. C 12. Na 23.

33. What weight of oxygen may be obtained from 215 grammes of potassium chlorate (K Cl O₂)?

- 34. How much potassium chloride will remain?
- 35. How many entire feet of oxygen would be necessary for the complete combustion of 40 cubic feet of hydrogen?

36. In preparing nitrogen for experimental purposes, how many gallons of air will be needed to furnish 16 gallons of N?

37. If a diamond weighing 2 carats were burned, what would be the weight of the carbonic dioxide (C O₂)

that would be formed?

38. What weight of hydrogen must be burned to produce 3 tons of water?

39. How many pounds of sulphuric anhydride (S O₂)

in 98 pounds of sulphuric acid (H2 S O4)?

40. What is the weight of the C O_2 in 200 pounds of marble (Ca C O_3)?

HONORARY.

- 1. What weight of bicarbonate of soda (H Na C O_3) would be required to evolve 22 pounds of carbonic acid gas (C O_2)?
- 2. How much K Cl O₃ would be required to evolve sufficient O to burn the H produced by the decomposition of 6 pounds of H₂ O?
- 3. What weight of water is there in a cwt. of sodium sulphate (Ne., SO₄, 10 H₂O) or Glauber's salt?

Examination Papers.

ASTRONOMY

DECEMBER, 1879.

ASTRONOMY.

- 1. To what class of heavenly bodies does the sun belong?
- 2. Name the most celebrated Grecian astronomer.
- 3. Name the most renowned Egyptian astronomer who flourished in the second century after Christ.
- 4-5. Who was Copernicus, and whose teachings did he revive?
- 6-7. For what are Galileo and Newton respectively celebrated?
 - ... How is the eccentricity of an ellipse determined?
 - 9. State the exact geometrical form of the earth.
 - 10. What are stars of the sixth magnitude?
- 11-12. State the two reasons why the stars vary in their brightness.
- 13. What separates the northern from the southern constellations?
 - 14. What does β (beta) Canis Majoris signify?
 - 15. What are binary stars, or physical couples?
 - 16. What is a true nebula?
- 17. Why does the sun's disk appear slightly larger in January than in July?
- 19-19. What is meant by saying that the volume of the sun is 1,200,000 times that of the earth, and that its mass is 300,000 the earth's mass?
- 20. What is the form and direction of the path described by a sun spot when the south pole of the sun is turned toward the earth?
 - 21. What are sun spots?

- 22. How is the heat of the sun believed to be maintained?
- 23. If we could look down upon the solar system, what bodies would we observe to revolve in the same direction as the hands of a clock?
- 24. Why does the horizon at sea prove that the earth is globular?
- 24. The earth is journeying around the sun at the average rate of 19 miles a second; why are we not conscious of this immense velocity?
- 26. If the earth's axis were perpendicular to the plane of the ecliptic, how would the days and nights over the earth's surface compare in length?
- 27-28. If an observer could see the earth from the sun at the time of the summer solstice, beyond which pole of the earth would he see? To what extent?
- 29. What season would prevail at this time in the south temperate zone?
- 30. Why does not the moon always present a circular disk, as the sun does?
- 31. Why cannot the moon be, at present, inhabited by beings constituted as we are?
- 32. What three things are essential that an annular eclipse of the sun may occur?
 - 33. Why can there not be an annular lunar eclipse?
- 34. Why are Mercury and Venus the only planets that can present phases like the crescent moon?
- 35. State in what respects Mars closely resembles the earth in its physical aspects?
- 36. To what cause is the great flattening of the planet Jupiter at its poles due?
- 37. State one reason why we believe that Jupiter is not yet in a condition for the abode of human beings like ourselves.
- 38. In what respect does Saturn differ from all other known heavenly bodies?
 - 39. Write the numbers of Bode's law.

- 40. What was there about this law that led Kepler to predict the existence of a planet having its orbit between the orbits of Mars and Jupiter?
- 41. What is believed to be the physical constitution of comets?
 - 42. How does declination differ from celestial latitude?
- 43. Why must the earth rotate 366 times in order that there may be 365 solar days during the year?
- 44. State the principal reason why the solar days vary in length.
- 45. What is the latitude of a person who, after allowing for refraction, finds that the altitude of the pole star is 40°?
- 46. The difference in longitude between two places is 14° 15'; what is the difference in time?
- 47. The mean distance of Venus from the sun is 66,131,-000 miles; state approximately how many miles further this planet is from the earth at superior than at inferior conjunction.
- 48. If the earth's axis were inclined 10° more than it now is, what would be the width of the temperate zones?
- 49. Draw a diaagram illustrating the relation of the Sun, Earth and Venus, when the latter is at its greatest elongation.
- 50. If on the planet Jupiter a body, under the influence of its attraction, falls a distance of 38.89 feet in the first second of its descent, through what distance will it fall in ten seconds?

Examination Papers.

NATURAL PHILOSOPHY.

NATURAL PHILOSOPHY.

- 1-2. From the following named phenomena, 1st, select those which are physical; 2d, select those which are chemical: A falling body; the union of oxygen and hydrogen to form water; the occurrence of sound; the combustion of coal.
- 3. From the following named properties of matter select those which are called essential: Hardness, color, impenetrability, malleability, magnitude.
- 4. Why is it incorrect to call the smallest possible division of water an atom?
- 5. The properties of matter, compressibility and expansibility are dependent for their existence upon what general property of matter?
- 6. In what respect does internal or molecular force differ from all other forces?
- 7. What name do we give to that class of bodies in which the internal force is one of repulsion?
 - 8. Name the four kinds of molecular attraction.
- 9. Why would a body have no weight at the center of the earth?
 - 10. How is the momentum of a moving body determined?
- Name and give the length of the unit of measure in the French system.
- 12. What is meant by saying that the specific gravity of gold is 19.360?
- 13. When will the center of gravity in a body coincide with its center of magnitude?
- 14-16. State the relation of the point of support to the center of gravity in indifferent, stable and unstable equilibriums.
- 15. What must be the location of two plumb lines on the earth in order that they may be at right angles?
 - 16. A falling body is an example of what kind of motion?
- 17. What is the relation of the angle of incidence to the angle of reflection in reflected motion?
 - 18. Illustrate the above law by a diagram.
 - 19. How does simple differ from compound motion?

- 20. What does the term resultant or resultant direction signify?
 - 21. The earth's polar flattening is due to what?
- 22. The wedge and the screw are modifications of which mechanical power?
- 23-25. Illustrate the first, second and third classes of levers.
 - 26. State the law for the increase of friction.
- 27. Why are the stalks of the grain-bearing plants hollow?
- 28. The ocean is said to be the source of all terrestrial water; how does the water get from the ocean to the land?
 - 30. How do liquids transmit pressure?
- 31. The pressure of a column of liquid is proportional to what?
- 32. In order that a body may float with stability, where must its center of gravity be?
- 33. Why is the velocity of a river greater at the center than near the banks?
 - 34. What is the origin of sea waves?
 - 35. What is the sky?
- 36. How did the ancients explain the ascent of water in a tube by suction?
- 37. To what cause did Torricelli attribute the phenomenon?
- 38. In the most flourishing period of its history, ancient Athens was 25 miles in circumference; with what velocity per hour would an Athenian have had to move, in order to walk round the city in 5 hours?
- 39. Suppose two bodies, one weighing 40 and the other 60 lbs., situated 200 feet apart, were free to move toward each other, under the influence of mutual attraction; what space would each pass over before they came in contact?
- 40. A body on the surface of the earth weighs 20 pounds; what would be its weight 4000 miles above the earth's surface?
- 41. The specific gravity of platinum is 21.500; if the weight of a cubic foot of water be 1000 ounces, what is the weight of 2 cubic feet of platinum?
- 42. An irregular fragment of stone weighed in air 153 grammes, and in water 112 grammes; what was its specific gravity?

- 43. How far will a body acted upon by gravity alone fall in 15 seconds?
- 44. What must be the length of a pendulum to vibrate once in three seconds, at that place on the earth where a pendulum 39 inches in length vibrates once in 1 second?
- 45. A lever of the second class is 15 feet long; at what distance from the fulcrum must a weight of 300 pounds be placed in order that it may be balanced by a power of 100 pounds?
- 46. A power of 80 pounds acts, on a wheel 10 feet in diameter; what weight suspended from a rope winding around the axle, 10 inches in diameter, will the power balance?
- 47. With what force must a man push against an iron cylinder weighing 600 pounds to keep it from rolling down a smooth inclined plane 12 feet long and 4 feet high?
- 48. What will be the pressure of the water on the bottom of a cistern, the bottom being 10 feet long and 6 feet wide, and the depth of the water 5 feet?
- 49. With what force will the water press against one of the sides?
- 50. To what height may water be raised by suction at a place where the barometer stands at 28 inches? The specific gravity of mercury is 13.6.

HONORARY.

- 1. What must be the horse power of a steam engine capable of lifting 6 tons of water to the height of 60 feet in 5 minutes of time?
- 2. How many more pounds weight can a power of 150 pounds sustain in a system of 4 movable pulleys, in which each pulley has a rope of its own, than in a system of the same number of pulleys with a single rope, no allowance being made for friction?
- 3. Wishing to ascertain the difference in volume between two irregular fragments of stone, they were weighed in air and then in water; their losses in weight in water were 15 ounces and 23 ounces respectively; determine their difference in volume in oubic inches.
- 4. If 320 cubic feet of water flow from an orifice in the side of a reservoir 16 feet below the surface in one hour, at what depth must another orifice of equal size be placed in order that twice as much water may flow out in an equal period of time?
- 5. What will be the pressure of the air on the body of an animal, whose surface is 21 square feet, at a time when the mercury in the barometer is 26 inches high?

Examination Papers.

HISTORY

HISTORY.

- 1. Name the main branches of the Caucasian race, and the nations included in each.
 - 2. Give a sketch of the physical geography of Egypt.
 - 3. By what nations was Egypt successively conquered?
 - 4. Into what castes were the Egyptians divided?
- 5. Of what value was the discovery of the Rosetta
- 6. Of what successive kingdoms was the Tigro-Euphrates basin the seat?
 - 7. What arts flourished among the Chald aus?
 - 8. By what monarchs was Nineveh overthrown?
 - 9. What were the achievements of Nebuchadnezzar?
 - 10. With what event does Jewish national history begin?
 - 11. When was Jerusalem finally destroyed?
 - 12. What has proved to be the mission of the Jews?
 - 13. What was the greatest period of Phoenician history?
 - 14. How did Phoenicia contribute to civilization?
- 15. By what means was our first record of the society of India obtained?
 - 16. What is the doctrine of transmigration?
 - 17. What are the oldest writings of the Hindoos?
- 18. What circumstance first brought the Medes into notice?
- 19. What was the extent of the empire of Cyrus at the close of his reign?
- 20. What brought about the revolution in the time of Cambyses?
- 21. How was the government of Persia an advance upon previous governments?

- 22. What were the most commercial nations anterior to the Greeks?
- 23. What forms the contrast between Oriental and European history?
 - 24. What is the extent of Greece proper?
- 25. Give an outline of the legendary account of the cause and progress of the siege of Trov.
- '26. What colonies were formed by the Greeks in Asia Minor?
- 27. What political change took place in Greece in the eighth century B. C.?
 - 28. What was the object of the Lycurgan laws?
 - 29. What were the results of the Spartan education?
 - 30. What was the constitution of Sparta?
 - 31. What was the nature of the laws of Draco?
 - 32 Who was Pisistratus?
 - 33. When did Athens become a democracy?
- 34. What brought about the quarrel between Persia and Greece?
- 35. State the number of the Persian invasions, and give the chief points of each.
- 36. What gave Athens her ascendency during the age of Pericles?
- 37. Give the general and the immediate cause of the Peloponnesian war.
- 38. Give a brief outline of the career of Philip of Macedon.
- 30. What time elapsed between Alexander's departure from Greece and his complete conquest of Persia?
 - 40. What were the chief Grecian leagues?
- 41. What were the chief national festivals among the
- 42. How was the religion of the Greeks an advance upon previous paganisms?
- 43. State the geographical features of Italy, and the races carry inhabiting it.

- 44. Who was the last king of Rome, and when expelled?
- 45. What was the cause of the first secession of the plebeians, and what was gained by it?
 - 46. What were the main points of the Licinian Rogations?
- 47. Who held the governing power at the close of the conquest of Italy?
- 48. Give briefly the cause and the result of each of the Punic wars.
- 49. What was the extent of the Roman territory at the beginning and at the close, of the period of foreign conquest?
- 50. Name the good and the evil effects of the Roman conquests upon the Romans themselves.
 - 51. What factions existed in Rome at the death of Sulla?
 - 52. What caused the enmity between Pompey and Cassar?
 - 53. Give a review of the conquests of Cæsar.
- 54." Why was the second triumvirate formed, and who were its members?
- 55. Mention the situation of Actium, and give an account of the battle there fought.
 - 56. When did Egypt become a Roman province?
- 57. What was the nature of the imperial rule when Octavius became emperor?
- 58. What was the proportion of the free to the slave inhabitants at that time?
- 59. How was Roman citizenship extended during the empire?
- 60. What division of the empire was made at the death of Theodosius?
 - 61. What policy was pursued by Constantine?
- 62. What signs of the decay of Rome were evident in the fifth century?
 - 63. Give a sketch of the career of Attila.
- 64. By what Gothic chieftains was Rome sacked in the fifth century?
 - 65. Who was the last of the Western Roman emperors?

Examination Papers.

SCIENCE OF GOVERNMENT.

SCIENCE OF GOVERNMENT.

- 1. What was the Confederation? By whom were the delegates to Congress chosen, and how did they vote?
 - 2. Give the preamble to the Constitution.
- 3. By whom are representatives elected? Senators? How shall vacancies in the House be filled?
- 4. What are the necessary qualifications of a representative? A senator? The President?
- 5. How shall vacancies in the Senate be filled? Explain the mode of electing a senator.
- 6. What are the necessary qualifications of an elector? Define "high seas."
- 7. In criminal actions, what rights shall the accused have? What is a writ of habeas corpus?
- 8. What are the duties of a grand jury? Name the officers of the President's cabinet.
- 9. To how many Presidential electors is each state entitled? What judicial powers has the Senate?
- 10. What is the second method by which a bill may become a law? Elective powers of the Senate?
- 11. Describe the duties of the State Department. Which Presidents served two terms?
- 12. What war powers has Congress? What is a contract? A libel?
- 13. How may an alien become a citizen of the United States? What is an excise?
- 14. When may the writ of habeas corpus be suspended? Elective powers of the House?

- 15. What are the duties of the Attorney-General? What is an indictment?
- 16. What is an ex post facto law? How may the return of a criminal, fleeing into another state, be secured?
- 17. Name the classes of federal courts. How was each established and organized?
- 18. What is a tonnage duty? When will the next Presidential election be held? When will the electors meet to ballot for President and Vice-President?
- 19. For what length of time may a patent-right be granted? What officer shall the senate elect? His qualifications?
- 20. Explain the course pursued by the House in preferring articles of impeachment. What is a bankrupt?
- 21. What vote is necessary to ratify a treaty? Explain the homestead law.
- 22. What are the prohibitions in regard to religious freedom? What commercial restrictions are imposed upon the states?
- 23. What is original jurisdiction? Who has supervision of the census?
- 24. What is a capitation or poll tax? If a foreigner take the oath of intention, and die before taking the oath of allegiance, leaving children under age, how may the children become citizens of the United States?

Examination Papers.

COMPOSITION AND ELOCUTION.

COMPOSITION AND ELOCUTION.

SECOND YEAR.

- 1-2. Mention three important characteristics of a well-composed letter of friendship. Two of a business letter.
- 3. Give general directions for writing and sending a letter of introduction.
 - 4. Give a form of superscription to a letter.
 - 5. Write a note of invitation.
 - 6-7. Define a periodic sentence. What is its opposite?
 - 8. When is the balanced sentence appropriately used?
- 9-10. What is the effect of the use of short sentences in composition? Of long sentences? What nation inclines to the use of each?
- 11. Where in a sentence should the leading or prominent thought be introduced?
 - 12-15. Name the principal elements of style.
 - 16. Give Quintilian's rule regarding clearness.
- 17-19. Give three directions the observance of which will conduce to clearness of style.
 - 20. Define Unity.
- 21-25. Mention five particulars to be regarded in seeking strength of expression.
- 26-29. What is the effect of introducing several different subjects into one sentence? Of the use of redundant words? Of frequent parentheses? Of adding a supplementary clause after the sentence has been seemingly brought to a close?

30. What should be observed in the construction of a sentence consisting of two contrasted clauses?

Correct or improve the following sentences, pointing out and naming the faults which occur in each:

- 31. Thought and language act and re-act mutually upon each other.
- 32. The good man not only deserves the respect but the love of his fellow beings.
- 33. There was a great quantity of these animals in the country.
- 34. This great and good man died in the year 1683leaving behind him the memory of many noble actions, and a numerous family, of whom three were sons; the eldest of whom, George, was the following year elected as member for the county in which he lived, to serve in Parliament.
- 35. Charlemagne patronised not only learned men but also founded several educational institutions.
- 36. There still remained enough food for three days, if carefully apportioned among them.
- 37. His careful observance of every thing which he saw furnished him with a fund of useful information.
 - 38. Poetry has the same end with Christianity.
 - 39. I cannot think of leaving you without distress.
- 40. I am entirely determined, under any circumstances, to make the journey, unless it rains.
- 41. The dexterity of the Chinese juggler almost appears miraculous.
 - 42. Is it your habit to spend the holidays in New York?
- 43. Scarcely had he uttered the fatal word than the fairy disappeared.
- 44. Ignorance is a blank sheet on which we must write; error, a scribbled one, and we must erase from it.
 - 45. His apparent guilt justified his severe punishment.
- 46. He forgets the gratitude that he owes to all those that helped him when he was poor and uninfluential, and John Smith in particular.

- 47. Whenever I call he always inquires for you.
- 48. His impertinence aggravates me.
- 49. He took it from, and would not return it to the child.
- 50. I go; but I return again.
- 51-60. Indicate the pronunciation of the following words: Acclimate, blithe, chastisement, coquetry, coterie, didactic, excise, heaven, grease (verb), gladiator.
- 61-80. Give the derivation and the signification of the following prefixes: Pre, counter, demi, dia, contra, sur, intro, hyper, ante, mis.
 - (a.) Time from Chaucer to Shakespeare.
 - (b.) " " Shakspeare to Milton.
 - (c.) " " Milton to the year 1750.
- 81-88. State to which of the preceding divisions of time each of the following authors belongs: Defoe, Caxton, Steele, Jonson, Locke, Newton, Congreve, Penn.
- 89-100. Give the names of four authors not above mentioned, belonging to each of the preceding divisions respectively.

Examination Papers.

READING AND COMPOSITION.

READING AND COMPOSITION.

FIRST YEAR.

- 1-15. Correct the following sentences:
- a. This is a man whom I think deserves encouragement.
- b. Is she as tall as me?
- c. Both Cato and Cicero loved his country.
- d. This was the Apostle's Paul's advice.
- e. We knew it to be him.
- f. Peter's sister married John Brown—he that was here yesterday.
 - g. Me being young, they deceived me.
 - h. Every boy and girl must learn their lessons.
 - i. Whom did he think you were?
 - j. She finds a difficulty of fixing her mind.
 - k. Such expressions sound harshly.
 - l. Go and lay down, my son.
 - m. Ignorance or Negligence have caused this mistake.
 - n. You may rely in what I tell you.
 - o. There is doubt of him being in earnest.
 - 15-24. Punctuate the following sentences:
 - a. If wishes were horses beggars might ride
- b. He had no doubt great aptitude for learning lunguages
- c. No man who has not been at sea can be proficient in navigation
- d. We the people of the United States do hereby ordain and establish this constitution
 - e. Be punctual that you may succeed
 - f. He was a brave pious patriotic man
- g. Homer who has given us the story of Troy divine is the father of Epic poetry

- h. Homer was the greater genius Virgil the better artist
- i. I beg sir to acknowledge the receipt of your favor
- j. Semiramis built Babylon Dido Carthage and Romulus Rome
 - 25. Define Composition. Give its principal divisions.
 - 26. Define Exposition as a form of Composition.
- 27. What three words have nearly the same meaning as person?
- 28. What is the difference in meaning between habit and custom?
 - 29. What word is opposite in meaning to sink?
 - 30. What word is stronger in meaning than rough?
- 32-35. Give sentences illustrating the use of an objective and a predicate substantive, as adverbial modifiers; and of a prepositional phrase and a possessive, as adjective modifiers.
- 36-46. Indicate the pronunciation of the following words by the proper discritic marks, re-spelling the word when necessary: Biography, coffee, compensative, amenity, aspirant, blithe, baths, amenable, Chinese, acclimate.
 - 47. Give an outline of your work in Elecution.
 - 48. Define Modulation.
- 49-50. Describe the Guttural quality of voice, and state when it is appropriately used.

Examination Papers.

RHETORIC.

REETORIC.

Ī.

The language. 1. With what other languages classified?
2. Its elements? 3. Give a historical outline of the formative periods—the fifth to the eleventh century.

H.

- 1. What does diction comprise?
- 2. What law governs the formation of words?
- What are synonyms?
- 4. Why are they numerous?
- 5. What is the difference in origin between begin and commence? forsake and desert? end and finish?
 - 6. Give five synonyms of unite.
- 7. Express each, in appropriate relations to other words. What do can but and can not but signify?
- 9. Correct: The day got so warm that he got ready and got off half an hour before I got there.
 - Use got properly.
- 11. Characterize these words: Affidavit, currentness, admonishment, blasé, plateau.
 - 12. In the choice of words, what should be avoided?

Ш.

- 13. In what classes may sentences be considered?
- 14. Write a balanced sentence.
- 15. When composed of contrast, what is it called?
- 16. What is the principle of suspense?
- 17. How is suspense gained?
- 18. By this principle change the following:

The lesson intended to be taught by this exercise will be lost, if the plan of operations is laid down too definitely beforehand.

I disbelieve in everything which is not practical; theories which amuse philosophers have no attractions for me, for this reason.

19. Remedy the ambiguity of the next sentence by three methods of construction:

He told his friend that his brother was surprised that he had given so small contribution.

20. How may a change in the grammatical order increase Rhetorical effect? Hustrate.

IV.

Write the following sentences corrected, and designate the fault, naming the principle disregarded:

- 21. I have often heard him reiterate repeatedly that he would never again, if a safe and secure path was open to him, prefer the perilous road to danger however alluring and attractive the latter might be.
- 22. The universal opinion of all the citizens was that the citadel had been betrayed.
- 23. This is a book which is short and amusing which can be easily understood, which is admirably adapted for the purpose for which it was written.
- 21. The prince seemed to have before him a limitless prospect of unbounded prosperity, carefully trained for the tasks of the throne, and stimulated by the pattern of his father, who breathed his last suddenly at the age of sixtytwo, just after the conclusion of the war.

V.

Write an exercise on Saturday.

PLAN:

Origin of name. Apostrophe to the day.

Saturday to the scholar; the housekeeper: the merchant; the clerk.

Saturday night, in old times; in modern times. The Saturday of life.

Let it contain metonymy, synecoloche and metaphor. Avail yourself of these hints, if helpful.

Length, at least one page.

Examination Papers.

GEOMETRY

CEOMETRY.

. Define Geometry.

Define the various kinds of lines, surfaces, angles.

When are two angles complements? when supplements? What are parallel lines?

2. Give the division of triangles with reference to angles; also with reference to sides.

What is the measure of a triangle?

What is the measure of a trapezoid?

In what cases are triangles equal? In what cases equiva-

What is the difference between equal and equivalent magnitudes?

3. What are equimultiples of magnitudes?

When are two magnitudes reciprocally proportional?

What is a circle?

What is a sector of a circle? a segment? an arc? a secant?

4. Prove that the complementary parallelograms described about any point in the diagonal of any parallelogram are equivalent.

If a straight line is divided into any two parts, prove that the square on the whole line is equivalent to the sum of the squares on the two parts plus twice the rectangle measured by the parts.

- 5. Prove that the square on the hypotenus of a right-angled triangle is equivalent to the sum of the squares on the other two sides.
- Prove that parallelograms having equal altitudes are to each other as their bases.

- 7. Prove that similar triangles are to each other as the squares of their like sides.
- 8. What is the measure of an angle at the center of a circle? at the circumference?
- What is the measure of an angle formed by a tangent and a chord? of one formed by two secants meeting without a circle? of one formed by a secant and a tangent?
- 9. Prove that through three given points, not in the same straight line, one circumference can be made to pass.

Prove that in the same circle, or in equal circles, equal chords are equally distant from the center.

10. When two chords intersect each other within a circle, prove that the angle thus formed is measured by one-half the sum of the two intercepted arcs.

Examination Papers.

ALGEBRA.

ALGEBRA.

- 1. Name and define the different kinds of Algebraic quantities.
- 2. What is the sign of Evolution, and what does it indicate?
- 3. Express in two ways the 5th root of the 4th power of (a+b).
- 4. Write a Homogenous quantity of the fourth degree; the first term composed of simple factors, the second of compound factors, and the third of compound terms.
- 5. What is the difference between the absolute and the algebraic value of a quantity?
- 6. What two things are to be considered in subtraction in Algebra? How is each indicated?
- 7. What do the signs of the minuend and subtrahend show?
- 8. What is the reciprocal of b^{-m} ? What is the value of b^{-m} ?
- 9. What is a quantity having a cipher for an exponent equal to? Prove it.
- 10. When is the sum of the same powers of two quantities divisible by the sum of the quantities? When by the difference of the quantities?
 - 11. What is the apparent sign of a fraction?
 - 12. What is the root of an Equation?
- 13. Express in Algebraic language: The quotient arising from dividing the sum of a and b by the product of c and d, is greater than f times the sum of m, n, x and y.

- From the sum of $3x^3-4ax+3y^2$, $4y^2+5ax-x^3$, y^2 $ax+5x^3$, and $3ax-2x^2-y^2$, take the sum of $5y^2-x^2+x^3$, $ax-x^3+4x^2$, $3x^3-ax-3y^3$, and $7y^2-ax+7$.
- Remove signs of aggregation from and reduce the following:

$$3a-[a+b-(a+b+c-(a+b+c+d))].$$

- Multiply $3a^{m-1}-2b^{n-2}$ by $2a-3b^2$.
- Divide $x^{m-1-1} + x^m y + xy^m + y^{m-1-1}$ by $x^m + y^m$. 17.
- Factor $a^4b^2+2a^2b^3+a^2b^4$. Factor $(a+b)^2-(c+d)^2$.
- Find the L. C. M. of $3x^3+6x^2-5x-10$ and $6x^4-$ 19. $4x^{3}-10.$
- Reduce to the form of an entire quantity, taking all 20. the intermediate steps, $\frac{a^2b}{4x^3y}$.
 - Add $\frac{a+b}{(b-c)(c-a)}$, $\frac{b+c}{(c-a)(a-b)}$ and $\frac{c+a}{(a-b)(b-c)}$. Divide $\frac{a^6-x^6}{a^2-2ax+x^2}$ by $\frac{a^2+ax+x^2}{a-x}$.

3. Simplify
$$\frac{x-1}{m} - \frac{x+1}{n}$$

- 23. Simplify $\frac{\overline{m} \overline{n}}{\frac{x+1}{m} + \frac{x-1}{n}}$
- Reduce $x+1-\frac{x^3-4x^2+8}{(x-2)^2}$ to a fraction.
- 25. Find the value of x in the equation

$$\frac{3x}{4} - \frac{x-1}{2} = 6x - \frac{20x+13}{4}$$

HONORARY.

- In $x^5-2x^4+3x^3-7x^2+8x-3$, substitute y+1 for x. 1.
- Find G. C. D. of $a^4 + a^2b ab^3 b^4$ and $a^4 + a^2b^2 + b^4$. 2.
- From $\frac{4a-3b}{7ab(a-b)-2(a^3-b^3)}$ take $\frac{8a-b}{3ab(a+b)-2(a^3+b^3)}$ 3.
- Multiply together $\frac{c(a-c)}{a^2+2ac+c^2}$, $\frac{c(a+c)}{a^2-2ac+c^2}$ and $\frac{a^2-c^2}{ac^2x}$ 4.
- 5. Simplify $\frac{a+1}{b} 2 + \frac{b-1}{a}$ $\frac{a-1}{a-2} 2 + \frac{b+1}{a}$

Examination Papers.

ARITHMETIC--B.

ARITHMETIC-B.

T.

- 1. What is the unit of §? What is its fractional unit?
- 2. Multiply and divide .348 by 10, without expressing the multiplier or the divisor. Explain.
- 3. Demonstrate the rule: To divide one fraction by another, invert the terms of the divisor and multiply.
 - 4. Simplify $\left[2\frac{3}{4} + \left(\frac{5}{2} \times \frac{7}{3\frac{7}{4}}\right) \frac{1\frac{7}{3}}{2\frac{7}{4}} \div 1_{\frac{7}{2}\frac{7}{2}\frac{7}{8}}\right]$.
 - 5. Reduce $(.02+.0346)-(.001\times.3)\div.208$.

H.

- 1. Name five elements involved in Percentage.
- 2-3. Show, by examples, the method of finding each part. (a) (b) (c) (d) (e).
- 4. To what six subjects of arithmetical calculations do these principles apply?
 - 5. Speak of stocks. What terms express their value?

TIT

- 1. I received a 6% on railroad stock, and invested the money in the same stock at 75%. My stock had then increased to \$16,200; what was the amount of my dividend?
- 2. What is the difference between the true and the bank discount of \$2500, payable in 90 days at 7%?
- 3. Which is the more advantageous, to buy flour at \$5 a bbl. on 6 mo., or \$4.87\frac{1}{2} cash, money being worth 7%?
- 4. I invested \$6864 in government bonds at 106%, paying 14% brokerage; afterwards sold the stock at 112%, paying 14% brokerage; what was my gain?

5. I send a quantity of dry goods into the country to be sold at auction, on commission of 9%. What amount of goods must be sold that my agent may buy produce with the avails, to the value of \$3500, after retaining his purchase commission of 4%?

IV.

- 1. A gentleman gave a mortgage on his estate for \$9750, dated April 1, 1860, to be paid in 5 years, with annual interest after 9 mos. on all unpaid balances, at 10%. Six months from date he paid \$846.50; Oct. 20, 1862, \$2500; July 3, 1863, \$1500; Jan. 1, 1864, \$500. How much was due at the expiration of the given time?
- 2. A and B are partners. A's capital is to B's as 5 to 8. At the end of 4 months A withdraws \(\frac{1}{2} \) of his capital, and B \(\frac{3}{2} \) of his. At the end of the yerr their whole gain is \(\frac{3}{2} 4000 \); how much belongs to each?
- 3. A man paid \$165 to 55 laborers, consisting of men, women and boys; to the men he paid \$5 a week, to the women \$1 a week, and to the boys \$\frac{1}{2}\$ per week; how many were there of each?
- 4. If a man travel 7 mi. the first day, and 51 mi. the last increasing his journey 4 mi. each day, how many days will he travel, and how far?
- 5. What must be the dimensions of a cubical cistern to hold 2000 gallons?

V.

- 1. The sum of two numbers is 365, and their difference is .0675; what are the numbers?
- 2. 'The longitude of Paris is 2° 20' 22" E., and of Constantinople 59', E. When it is 1 A. M. at the latter place, what time is it at the former?
- 3. A vessel having sailed due south and due east on alternate days, was found, after a certain time, to be 118.794 miles south-east of the place of starting; what distance had she sailed?
- 4. If 24 men, in 189 days, working 10 hrs. a day, dig a trench 33²/₄ yd. long, 2²/₃ yd. deep, and 5¹/₄ yd. wide; how

many hours a day must 217 men work, to dig a trench 23½ yd. long, 2½ yd. deep, and 3½ yd. wide, in 5½ days? 5. Seven men all start together to travel the same way around an island 120 miles in circumference, and continue to travel until they all come together again. They travel 5, 6½, 7⅓, 8½, 9½, 10½ and 11½ miles per day respectively. In how many days will they all be together again?

Examination Papers.

ARITHMETIC.

ARITHMETIC.

- 1. Name and define the fundamental operations of A rithmetic.
- 2. Give the principles of the Arabic method of Notation. Express in figures, by the above named method, the following numbers: Nine hundred million and seven hundred; ten million and ten; seventy trillion, eight billion, one million and six hundred.
- 3. What is a fractional unit? a fraction? a simple fraction? a compound fraction? a complex fraction?

State the general principles of fractions, and give the general law deduced from them.

4. Find the value of the following:

$$\left[\frac{\frac{1}{2} + \frac{2}{1}}{8\frac{1}{3}} + \frac{7\frac{7}{6}}{6\frac{5}{3}} \right] \div 4 \times \frac{5}{8\frac{5}{3}}$$

5. State the rule for decimal notation, and for decimal numeration.

Express decimally the following: Fifty-six million and fifty-six millionths; one hundred and one thousand one hundred and one ten-millionths; five thousand and one millionths.

6. Find the value of the following:

$$(2 \times .02 \times .002)$$
— $(.01 \times .001 \times .0001 \times 10\frac{2}{5})$. $.0054 \div 144000$.

7. A cistern 18 ft. 3 in. long, and 7 ft. 4 in. wide, is full of water; how many gallons must be drawn off to lower the surface 1 foot?

A man bought 2 cwt. 87 lb. 10 oz. of sugar, at 6 cents a pound, and retailed it at 6½ cents a pound, using by mistake Troy weights; how much did he gain by the operation?

8. Name and define the elements used in operations in percentage.

The dry gallon contains 268.8 cubic inches; how many % larger is it than the wine gallon, or smaller than the beer gallon?

Owning 182% of a mill, I sold 65% of my share for \$975; what was the mill worth?

- 9. A offered his house for sale at an advance of 20%, but afterwards sold it for \$5250, which was 12½% less than his original offer; what was the first cost of the house?
- 10. A sold \$8700 of U. S. 5-20's of '84 at 104%, paying for necessary revenue stamps, and investing the proceeds in U. S. 10-40's at 94%; brokerage ½% for selling and for buying. Did he gain or lose by the exchange, and how much each year?
- 11. When 10-40's are selling at 103%, what sum must I invest in them to secure an income of \$530 in currency; gold at 132½%, brokerage ½%? Which is the better investment, 10-40's at 106% or 5-20's at 112%, and how much?
- 12. A trader got a shipment of 500 barrels of flour insured for 80% of its cost, at 3½%, paying \$107.25 premium; what did he pay per barrel for the flour?

For what sum must I get my library insured, at 14%, to cover a loss of \$7910?

13. A liquor dealer receives an invoice of 120 dozen bottles of porter, rated at \$1.25 per dozen; if 2% of the bottles are found broken, what will be the duty at 24%?

The duty on an invoice of French lace goods, at 24%, was \$132, an allowance of 12% having been made at the custom house for damage received since the goods were shipped; what was the invoice of the goods?

14. What is the amount of 10 cents for 10 yr., 10 mo., 10 da., at 104?

What is the interest on \$5000 for 10 da., at 10%?

15. A man who is paying \$650 a year for house rent borrows \$8500 for 6%, and buys the house; does he gain or lose by the transaction, and how much per year?

A broker allows 5% on deposits, and on an average lends out the amount 11 times a year, for 33 days each, at 2% a month; what is his gain on \$5000?

Examination Papers.

GERMAN READER.

German Reader.

- 1. How is the definite and how the indefinite article used in German?
 - 2. What is said about the repetion of the article?
 - 3. What does the nominative express in German?
- 4. To what in English does the German genitive correspond?
- 5. Render in German, without using the preposition: A man of business.
- 6. Translate: A daughter of the Queen of England has married the Crown Prince of Prussia, son of the reigning Emperor, William the First.
 - 7. How is the genitive absolute used in German?
 - 8. What is the dative case used for in German?
- 9. In what case are nouns put denoting a particular point or duration of time?
 - 10. Translate:
- Dun. Wie, Sire, ist das die Sprache eines Königs?

 Wibt man so eine Krone auf? Es seut

 Oer Schlechteste deines Bolkes Gut und Blut

 An seine Meinung, seinen Haß und Liebe;

 Bartei wird Alles, wenn das blut'ge Zeichen

 Des Bürgerkrieges ausgehangen ist.

 Der Ackersmann verläßt den Pflug, das Beib

 Den Roden, Kinder, Greise wassene sich,

 Der Bürger zündet seine Stadt, der Landmann

 Wit eignen Jänden seine Saaten an,

 Um dir zu schaden oder wohl zu thun

llub seines Herzens Wollen zu behaupten. Richts schonung, wenn die Ehre ruft, wenn er Kück schonung, wenn die Ehre ruft, wenn er Kür seine Götter oder Götzen tämpft.
Drum weg mit diesem weichlichen Mitleiben, Das einer Königsbruft nicht ziemt.—Raß du Den Krieg ausrasen, wie er angefangen.
Du haft ihn nicht leichtsinnig selbst entstammt. Kür seinen König nunß das Bolt sich opfern,
Das ist das Schickal und Gefetz der Welt.
Der Franke weiß es nicht und will's nicht anders.
Richtswürdig ist die Nation, die nicht

Examination Papers.

GERMAN GRAMMAR, D.

GERMAN GRAMMAR---D.

- 1. What is an Umfout?
- 2. What is a dipthong?
- 3. What is a compound consonant?
- 4. What is a double vowel?
- 5. How many parts of speech are there in German?
- 5. Write six German compound substantives, and give their gender.
 - Explain how the two modes of address are used.
 - 8. How are capital letters used in German?
- 9. Where do foreign words with German endings have the accent?
- 10. How many articles, genders, numbers and cases are there in German?
 - 11. Decline the definite and the indefinite article.
 - 12. How do German nouns form their accusative?
- 13. When do adjectives remain unchanged, and when are they declined?
 - 14. Write out the present tense of Saben.
 - 15. What do the possessive pronouns agree with?
 - 16. Write out the present tense of Scin.
- 17. Decline Febermeffer, Zugvogel, Sprachlehrer, Baumchen and Großvater.
- 18. Words derived from the Latin, ending in al, take what letters in the plural?
 - 19. What nouns are used in the singular only?

- 20. Decline Acibiades, Homer, Schiller, ber Ludwig, die Marie.
 - 21. Write out the names of months and days.
- 22. Give the German for Frederic, James, William, George and Eliza.
- 23. What do proper nouns add in the genitive, when not preceded by an article?
- 24. What is the definition of Chemann, Chemanner and Cheleute?
- 25. Translate: Bir haben Alexander Sumbolot's Briefe erhalten.

Examination Papers.

GERMAN GRAMMAR.

A, B and C.

German Grammar,

A, B and C.

- 1. Translate: Bier find Schillers Gedichte.
- 2. Render in German the phrases: I am to. To be right. To be wrong. I do not praise. Do you praise?
- 3. Write out the prepositions governing the genitive, dative and accusative case.
 - 4. How are prepositions contracted with the article?
- 5. How are feminine appellations made from the masculine form?
- 6. How many forms of declension has the attributive adjective?
- 7. Like what case do German nouns form their accusative?
- 8. Where is the past participle placed in compound tenses?
 - 9. What substantives are masculine by signification?
 - 10. What is a noun with double gender?
- 11. Give the principal parts of haben, fein, werden, fönnen and wollen.
 - 12. Render in German: What has become of?
 - 13. What is the difference between muffen and follen?
 - 14. Give the personal pronouns in German?
- 15. Translate: Shall we remain? Will you go or not? They can come. Could you not go? I can read.
 - 16. Compare groß, gut, hoch, nahe and viel.
 - 17. Decline Schone neue fchwarze Rleiber.

- 18. Translate, Shall I? in the sense of am I to.
- 19. What is the order of words in principal, and in simple sentences?
 - 20. Translate:

Die allmächtige Band.

Nükliches, Wohlthätiges und Unentbehrliches, was zur Rahrung, zur Bekleidung und zum Obbach, überhaupt zur Erhaltung der lebenden Geschöpfe gehört, sinden wir in der Natur. Das Wasser löscht unsern Durst; allerlei Früchte fättigen untern Hunger; wir sinden Waterialien zu unserer Bekleidung und zum Ban unserer Wohnungen. Sine allmächtige Hand theilt aus, was wir bedürsen.

Aber auch Schönes, Großes und Herrliches hat Gott geschaffen, was wir mit staunendem Entzücken betrachten, was nusere Bewunderung erregt und unsere Herzen mit Freuden erfüllt. Der Glanz des Sternenhinmels, die Worgens und Abendröthe, die verschiedenen Gestalten und Farben der Bolken, das schöne Grün der Biesen und Blätter an den Bäumen, die Blüthen und Bumen zeigen und seine Schönheit und Pracht, die uns rührt und bewegt, und unsere Seele zu Gott in dankbarer Anderung erhebt, daß er sein großes Schöpfungswerf so herrlich und unnachahmlich gesichmildt hat.

Examination Papers.

LATIN GRAMMAR.

Latin Grammar.

- 1. Give the terminations of each of the five declensions.
- 2 a. Give the singular ablative of ager.
 - b. " " plural ablative of agricolo.
 - c. " " plural genitive of rex.
 - d. " " singular dative of manus.
 - e. " singular accusative of res.
- B. Decline the adjective levis.
- 4. How are adjectives regularly compared?
- 5. According to what declension is the comparative degree of adjectives declined?
- 6. Form the superlative degree of altus, and decline the superlative thus formed.
 - 7. Compare bonus, malus, magnus, parvus, multus.
 - 8. Form an adverb from amplus, and compare it.
 - 9 Give the first twenty of the ordinal numbers.
 - 10 a. Give the singular dative of hic.
 - b. " " plural genitive of is.
 - c. " singular accusative of ille.
 - d. " " plural nominative of idem.
 - e. " 'singular genitive of ipse.
 - 11. Decline the personal pronoun of the first person.
 - 12. Decline the relative pronoun.
- 13. Give a synopsis of the indicative and subjunctive modes of sum.
 - 14. Give the principal parts of voco, docso, scribo, punio
- 15. What root of the verb is used in forming the present-subjunctive? the gerund? the perfect infinitive? the supine?

16.	Of	the	verb	duco,	give.
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- a. The active, indicative, present, singular, third person.
- b. " " future, plural, first person.
- c. " " perfect, singular, second person.
 d. " " perfect, singular, first person.
- e. " " imperfect, plural, second person.
- 17. Of the verb laudo, give,
- a. The active, subjunctive, present, plural, first person.
- b. " " imperfect, singular, second person.
 c. " " perfect singular, third person.
- d. " " pluperfect, plural, second person.
- . " indicative, imperfect, singular, first person.
- 18. Of the verb moneo, give the gerund, the present participle, the future participle, the supines.
- 19. Give the terminations of the present, imperfect and future tenses of the passive voice, indicative mode, in each conjugation.
- 20. How is a question of simple fact, requiring the answer yes or no, formed in Latin?
 - 21. When are personal pronouns expressed?
 - 22. Give the rule for the agreement of adjectives.
 - 23. What is the gender of nouns of the fifth declension?
 - 24. Translate into English:
- 1. Nauta in insulæ ora stat. 2. Quis tibi hunc librum dedit? 3. Faber est suæ quisque fortunæ. 4. Cur heri in schola non fuisti? 5. Ferro pro sua patria dimicant Horatii. 6. Romulus nomen novæ urbi dat. 7. Tempus vitæ humanæ breve est. 8. Vir cum servo in arvum venit. 9. Alii puerum haudabant, alii culpabant. 10. Hæc sententia mihi placet, illa displicet.
 - 25. Translate into Latin:
- 1. The eagles fly across the deep waters. 2. The islands are not small. 3. The man has called his daughter. 4. The brother walks with his sister in the garden. 5. The boys were sad. 6. The soldiers are very brave. 7. The leaders of the armies fight bravely. 8. In the city are ten thousand soldiers. 9. You are reading, but I am writing. 10. Learn, boys.

Examination Papers.

CÆSAR.

CÆSAR

TRANSLATE:

I. Gallis magno ad pugnam erat impedimento, quod pluribus eōrum scutis uno ictu pilorum transfixis et colligatis, quum ferrum se inflexisset, neque evellère, neque, sinistra impedita, satis commode pugnare poterant; multi ut, din jactato brachio, praeoptarent scutum manu emittère et nudo corpore pugnare.

Give the rule for the government of each of the fol-

lowing: impedimento, scutis, ictu, se, manu.

Give the principal parts of intulerunt, adgressi, defessi, inflexisset, tolleret.

Give the genitive, singular and plural, of cometes, daphne, puer, ager, Orpheus, ops, miles, apex, bos, volucer.

Give the first ten cardinals and the second ten ordinals. Give the synopsis of pugno in the active voice, third

person singular.

TRANSLATE:

II. Prima luce, quum summus mons a T. Labieno tenerêtur, ipse ab hostium castris non longius mille et quingentis passibus abesset, neque, ut postea ex captīvis compērit, aut ipsīus adventus aut Labieni cognitus esset, Considius, equo admisso, ad eum accurrit: dicit montem, quem a Labieno occupāri voluērit, ab hostībus tenēri.

Give the rule for the government of each of the following: luce, castris, passibus, equo, montem.

Give the principal parts of comperit, cognitus esset, accurrit, confiderent, prendit.

Give the dative, singular and plural, of filia, lapis, poema, virgo, ebur, mus, sus, lampas, domus, solus.

Give the first ten distributives and the third ten numeral adverbs.

Give the synopsis of teneo, in the passive voice, third person plural.

TRANSLATE:

III. Repěrit esse vera: ipsum esse Dumnorigem, summa andacia, magna apud plebem propter liberalitătem gratia, enpidum rerum novārum: complūres annos portoria reliquaque omnia Aeduorum vectigalia parvo pretio redempta habēre, propterea quod, illo licente, contra licēri audeat nemo.

Give the rule for the government of each of the following: audacia, rerum, annos, pretio.

Give the principal parts of licēri, auxisse, alère, verebātur, nteretur, praeferre.

Give the accusative, singular and plural, of Anchises, caput, aries, opus, sitis, mare, senex, heros, tigris, manus.

Give the comparative of honus, miser, hebes, malus, parvus, acer, maledicus, idoneus, carè, leviter.

Give the synopsis of tego, in the active voice, second person plural.

TRANSLATE:

IV. Quum ca ita sint, tamen, si obsīdes ab iis sibi dentur, uti ca, quae polliceantur, factūros intellīgat, et si Aednis de injuriis. quas ipsis sociisque corum intulérint, item si Allobrogibus satisfaciant, sese cum iis pacem esse factūrum.

Give the rule for the government of each of the following: sibi, ipsis, quas, Allobrogibus.

Give the ablative, singular and plural, of deus, turris, partus, dives; the superlative of levis, vetus, malevolus, ulterior, superus.

Give the synopsis of audio, in the passive voice, second person plural.

Mood of inflexissit, praeoptareut, audeat and polliceantur?

Give the rule for each.

TRANSLATE:

V. The next year Lucius Cornelius Scipio, brother of the great Africanus, and Caius Laelius, the intimate friend of the latter, were consuls. Marcus Manlius, the preserver of the capitol, came forward as the patron of the poor. My uncle and myself, having returned to Misenum, passed an anxious and doubtful night. The wall was common to both houses, and was cleft by a narrow chink. After his exile Scipio passed the rest of his life at Liternum, a small town of Latium. Quintus and I shall set sail to-morrow, you and Tiro will wait for us in the harbor. The aged senators who had been consuls or censors sat in the forum on their curule chairs, awaiting death.

Examination Papers.

CICERO

CICERO.

- 1. Give a brief sketch of the life of Cicero.
- 2 (a.) What was the object of the lex Manilia?
 - (b.) Why called Manilia?
 - (c.) Where was the oration pro lege Manilia delivered?
 - (d.) Before whom?
 - (e.) In what year?
- (f.) What results attended the efforts of Cicero and his friends?
- 3. Give an analysis, or plan, of the whole oration, including a statement of the arguments, and the sub-divisions of them.

4. Translate:

Testis est iterum et saepius Italia, quae, quum servili bello, tetro periculosoque premeretur, ab hoc auxilium absente expetivit; quod bellum exspectatione ejus attenuatum atque imminutum est, adventu sublatum ac sepultum. Testes nunc vero jam omnes orae atque omnes exterae gentes ac nationes, denique maria omnia, quum universa, tum in singulis oris omnes sinus atque portus. Quis enim toto mari locus per hos annos aut tam firmum habuit praesidium, ut tutus esset, aut tam fuit abditus, ut lateret? Quis navigavit, qui non se aut mortis aut servitutis periculo committeret, quum aut hieme aut referto praedonum mari navigaret? Hoc tantum bellum, tam turpe, tam vetus, tam late divisum atque dispersum, quis unquam arbitraretur aut ah omnibus imperatoribus uno anno aut omnibus annis ah uno imperatore confici posse? Quam provinciam tenu-

istis a praedonibus liberam per hosce annos? quod vectigal vobis tutum fuit? quem socium defendistis? cui praesidio classibus vestris fuistis? quam multas existimatis insulas esse desertas! quam multas aut metu relictas aut a praedonibus captas urbes esse sociorum!

5. Translate:

Quem enim imperatorem possumus allo in numero putare, cujus in exercitu centuriatus veneant atque venierint? quid hunc hominem magnum aut amplum de re publica cogitare, qui pecuniam ex aerario depromptam ad bellum administrandum aut propter cupiditatem provinciae magistratibus diviserit aut propter avaritiam Romae in quaestu reliquerit? Vestra admurmuratio facit, Quirites, ut agnoscere videamini, qui haec fecerint; ego autem nomino neminem; quare irasci mihi nemo poterit, nisi qui ante de se voluerit confiteri. Itaque propter hanc avaritiam imperatorum quantas calamitates, quocunque ventum sit, nostri exercitus ferant, quis ignorat? Itinera, quae per hosce annos in Italia per agros atque oppida civium Romanorum nostri imperatores fecerint, recordamini: tum facilius statuetis, quid apud exteras nationes fieri existimetis. Utrum plures arbitramini per hosce annos militum vestrorum armis hostium urbes, an hibernis sociorum civitates esse deletas? Neque enim potest exercitum is continere imperator, qui se ipse non continet; neque severus esse in judicando, qui alios in se severos esse judices non vult.

ii. What is the difference in meaning between omnis, universus and totus, in 4?

What is the rule for the mood of lateret, in 4?

In what construction is bellum, in the sentence Hoc tantum bellum, in 4?

What is the rule for the mood of arbitraretur, in 4?

In what construction is praesidio, in 4?

In what construction is imperatorem, in 5?

In what construction is itinera, in 5?

Give the positive and superlative of facilius.

4	_				
7 1	'rang	late	into	Latin:	

Caesar erected, on the extremity of the bridge, a tower, and gave the command of that place to T. Volcatius.

Mithridates said that he had taken Cappadocia by his own power alone, without the assistance of any of the soldiers.

For the most part, men willingly believe that which they desire.

He who does not fear death, procures for himself a great security to a happy life.

Examination Papers.

VIRGIL.

VIRGIL.

1. Make a diagram so as to represent, on the musical scale, the accent, the ictus and the quantities, together with the divisions into feet, of the following verse:

Quadrupedante putrem sonitu quatit ungula campum.

- 2. State the fundamental difference between the term accent as used by the Latins and that used by ourselves and other modern people.
- 3. Explain how such difference necessitates a fundamental difference in the mechanical structure of ancient and modern verse.
- 4. What is a Latin hexameter line? Name and define the feet of which it is composed, and state how they are arranged, and name the two elements in the structure of this kind of verse which prevent monotonous repetition in sound, while but two kinds of feet are used in a whole poem.
- 5. Define ictus; caesura, each kind; ecthlipsis; synaloepha.
 - 6. Translate:

O socii,—neque enim ignari sumus ante malorum— O passi graviora, dabit deus his quoque finem. Vos et Scyllacam rabiem penitusque sonantes Accestis scopulos, vos et Cyclopia saxa Experti: revocate animos, maestumque timorem Mittite: forsan et haec olim meminisse juvabit. Per varios casus, per tot discrimina rerum Tendimus in Latium, sedes ubi fata quietas. Ostendunt; illic fus regna resurgere Trojae. Durate, et vosmet rebus servate secundis.

7. Translate:

Quis te nate dea, per tanta pericula casus Insequitur? quae vis immanibus applicat oris? Tune ille Aeneas, quem Dardanio Anchisae Alma Venus Phrygii genuit Simoëntis ad undam? Atque equidem Teucrum memini Sidona venire Finibus expulsum patriis, nova regna petentem Auxilio Beli; genitor tum Belus opimam Vastabat Cyprum, et victor ditione tenebat. Tempore jam ex illo casus mihi cognitus urbis Trojanae nomenque tuum regesque Pelasgi.

8. Translate:

Fracti bello fatisque repulsi
Ductores Danaum, tot jam labentibus annis,
Instar montis equum divina Palladis arte
Aedificant, sectaque intexunt abiete costas;
Votum pro reditu simulant; ea fama vagatur.
Huc delecta virum sortiti corpora furtim
Includunt caeco lateri, penitusque cavernas
Ingentes uterumque armato milite complent.

- 9. Explain the ellipsis implied in the two conjunctions in the first line of 6. Give the agreement of passi, graviora and experti, in the same.
 - 10. Govern oris, Sidona, finibus, auxilio and ditione, in 7.
- 11. Derive and give the etymon of an English word in common use from each word in the first line of 8.
- 12. Define precipitous, lapse, simulate, minimize, lateral, include, dissimilar, egregious, consecutively, malevolent, beneficent and incomprehensibility.

Examination Papers.

XENOPHON

XENOPHON.

I. TRANSLATE:

'Εντεύθεν έπειρωντο εἰσβάλλειν εἰς τὴν Κιλικίαν ἡ δὲ εἰσβολή ἢν ὑδὸς ὁμαξιτὸς, ὀρθία ἰσχυρῶς, καὶ ἀμήχανος εἰσελθεῖν στρατεύματι, εἴ τις ἐκώλυεν. 'Ελέγετο δὲ καὶ Δυέννεσις εἰναι ἐπὶ τῶν ἄχριων, φυλάττων τὴν εἰσβολήν · δι' ὁ ἔμεινεν ἡμέραν ἐν τῷ πεδίω. Τῆ δ' ὅστεραίμ ἡκεν ἄγγελος λέγων, ὅτι λελοιπώς εἴη Δυέννεσις τὰ ἄχρια, ἐπεὶ ἤρθετο ὅτι τὸ Μένωνος στράτευμα ἢδη ἐν Κιλίκιμ ἢν εἴσω τῶν ὑρέων, καὶ ὅτι τριήρεις ἡκουε περιπλεούσας ἀπὸ Ἰωνίας εἰς Κιλικίαν Ταμών ἔχοντα, τὰς Λακεδαιμονίων καὶ αὐτοῦ Κύρου.

2. TRANSLATE:

Ακούσαντες ταύτα ἐπείθοντο καὶ διέβησαν, πρίν τούς ἄλλους ἀποκρίνασθαι. Κύρος δ' ἐπεί ἤσθετο διαδεβηκότας, ἤσθη τε, καὶ τῷ στρατεύματι πέμψας Γλοῦν εἰπεν· " Ἐγὰ μὲν, ὁ ἄνδρες, ἤδη ὑμὰς ἐπαινὰ· ὅπως δὲ καὶ ὑμεῖς ἐμὲ ἐπαινέσετε, ἐμοι μελήσει· ἢ μηκέτι με Κύρον νομίζετε." Θί μὲν δὴ στρατιὰται, ἐν ἐλπίσι μεγάλαις ὅντες, εὐγοντο αὐτὸν εὐτυγῆσαι· Μένωνι δὲ καὶ δὰρα ἐλέγετο πέμψαι μεγαλοπρεπῶς. Ταὐτα δὲ ποιήσας διέβαινε συνείπετο δὲ καὶ τὸ ἄλλο στράτευμα αὐτῷ ἄπαν· καὶ τῶν διαδαινόντων τὸν ποταμὸν οὐδείς ἐβρέχθη ἀνωτέριο τῶν ὑπὸ τοῦ ποταμοῦ.

3. TRANSLATE:

" 2 ἄνδρες "Ελληνες, οὺχ ἀνθρώπων ἀπορῶν βαρβάρων συμμάχους ὑμὰς ἄγω, ἀλλὰ νομίζων, ἀμείνονας καὶ κρείττους πολλῶν βαρβάρων ὑμὰς εἶναι, διὰ τοῦτο προσέλαβου. "Οπως οὖν ἔσεσθε ἀνδρες ἄξιοι τῆς ἐλευθερίας, ἡς κέκτησθε, καὶ

δπέρ ης ύμως έγω εύδαιμονίζω. Εὐ γάρ ἴστε, ὅτι τήν ἐλευθερίαν ελοίμην ἄν. ἀντὶ ών εχω πάντων καὶ ἄλλων πολλαπλασίων. "Οπως δὲ καὶ εἰδητε, εἰς οἰον ἔμγεσθε ἀγῶνα, ἐγὼ ὑμῶς εἰδὼς διδάξω. Το μὲν γὰρ πληθος πολλι καὶ κραυγή πολλή ἐπίασιν ἀν δὲ ταῦτα ἀνάσχησθε, τὰ ἄλλα καὶ αἰσχύνεσθαὶ μοι δοκῶ οἴους ἡμῶν γνώσεσθε τοὺς ἐν τῆ χώρα ὄντας ἀνθρώπους. 'Γμῶν δὲ ἀνδρῶν ὅντων, καὶ εὐτόλμων γενομένων, ἐγὼ ὑμῶν τὸν μὲν οἴκαδε βουλόμενον ἀπιέναι τοῖς οἴκοι ζηλωτὸν ποιήσω ἀπελθεῖν: πολλοὺς δὲ οἰμαι ποιήσειν τὰ παρ ἐμοὶ ἐλέσθαι ἀντὶ τῶν οἴκοι."

- 4. And $(\partial \dot{\epsilon})$ after going down through this plain, he advanced four stations, fifteen parasangs, to Tarsi, a large and flourishing city of Cilicia.
- 5. Fellow $(\delta\nu\delta\rho\epsilon\epsilon)$ soldiers, do not wonder that I am deeply afflicted $(\varphi\epsilon\rho\omega)$ with the present state of affairs. For Cyrus became a friend to me, and both favored me otherwise, when I was an exile from my country (parts. of $\varphi\epsilon\nu\gamma\omega$), and gave me ten thousand daries.
- 6. (a.) The antecedent, case and government of \tilde{o} , in τ ?
- (b.) Explain the form of the tense of ξμεινεν, and tell what has become of its tense sign.
- (c.) State where λελοιπώς είγ is made, and give the rule for the mood.
- (d.) *Hισθετο, in 2. From what; where found; what English word does it afford us; and what is the real import of this derivative?
- (c.) "Hoθη. From what; where made; and from what adjective does it come?
- (f.) 'Ακούσαντες and ποτήσας. Where made; what called, when used as in 2; and how is it best to render such participles to distinguish them from both the present and the perfect?
- (g.) Compare αμείνονας and χρείττους, in 3. Supply the ellipsis in "θπως οὖν ἔσεσθε.

Examination Papers.

GREEK LESSONS.

Greek Lessons.

L. TRANSLATE:

΄ Ο δεσπότης ξαίστης της οιχίας. Περί δε τοῦ χαλῶς ἀποθνήσχειν ἀγωνίζονται. Διὰ μέσου δε τοῦ παμαδείσου, Ἐπὶ τὴν ἡμετέραν χώραν ἔργεσθε. Οι τοῦ ἐμοῦ ἀδελφοῦ φίλοι. ΄Απ' ἐχείνης τῆς ἡμέρας. Παύομαι ἐχείνης τῆς διανοίας. 'Εχ τῆσδε τῆς χώρας.

2. TRANSLATE:

`Εθαύμαζον, ὅτι οὐδαμοῦ Κύρος φαίνοιτο. 'Επί τον αδελφὸν Αρταξέρξην ἐστρατεύετο. Οι δὲ στρατιατατ ἐχαλέπαινον τοῖς στρατηγοῖς. Οι δὲ λοχᾶγοὶ ἐπι ταῖς θύραις ἔμενον. Τἢ δ' δστεραίφ ἐπορεύοντο διὰ τοῦ πεδίου. Αὐτὸς δὲ σὺν τοῖς λοιποῖς ἐπορεύετο ἐπί τὸν δεύτερον λόφον. 'Ο δ' αὐτῷ οὐχ ἐπίστευεν. `Επίστευον γὰρ τοῖς χωρίοις. Καὶ πάλιν τἢ δστεραίφ ἐθύετο.

3. TRANSLATE:

Ένταῦθα Κύρφ βασίλεια Ιν και παράδεισος. Τοῖς δὲ ὁποφία μὲν Ιν. 'Απὸ τοῦ αὐτομάτου δρόμος ἐγένετο τοῖς στρατιώταις ἐπί τὰς σκηνάς. 'Ην αὐτῷ πόλεμος πρὸς Πεισίδας καὶ Μυσούς.

4. TRANSLATE:

Αφιππεύει ἐπὶ τὴν ξαυτού σχηνήν. Ποιαν δ' ἡλιχιαν ἐμαυτοῦ ἐλθεῖν ἀναμένω; "Υρα ἡμῖν βουλεύεσθαι ὑπὲρ ἡμῶν αὐτῶν. Ἐφυλάττοντο δὲ ἀμφότεροι ὡσπερ πολεμίους ἀλλήλους. Πληγὰς ἐνέτεινον ἀλλήλοις. Οὺ γὰρ ἔγωγ' ἔτι ἄρχω ἀλλά Δαχεδαιμόνιοι.

Translate:

Αθυμότερος ήν. Ἡσαν πολὺ προθυμότεροι. Βασιλιχώτατός τε και ἄρχειν οξιώτατος. Ἡ θαυμασιώτατε ἄνθρωπε. Φοβερώτατον δ΄ ἔργμια. Φεύγειν αὐτοῖς ἀσφαλέστερόν ἐστιν, ἢ ἡμῖν. Καὶ θρασύτερός είμι, νῦν ἢ τότε. Οἱ δὲ στρατιῶται ἔχοπτόν τε τὰς πύλας, καὶ ἔλεγον, ὅτι ἀδικώτατα πάσχοιεν ἐχβαλλόμενοι εἰς τοὺς πολεμίους.

6. TRANSLATE:

Cyrus sends Lycius. Chirisophus apprehends Phalinus. Lycius and Phalinus plot against Callimachus. Let us bring stones, and not delay. Thereupon [now] Cyrus wonders. Let the Lacedæmonians rule. O Cyrus. they wonder. I do not wonder, [O] Cyrus.

7. TRANSLATE:

Let us take counsel. Let them learn both to rule and to be ruled. Clearchus, if you wish, speak. But, if they will, let them remain. Let Proxenus march. Clearchus is not willing to journey with Ariæus. Let us not march with Cyrus O Lacedæmonians, let us consult together. Let them march, if they will.

8. TRANSLATE:

Phrygia produces barley, wheat, sesame, millet and panic. Mithridates writes a letter, and sends it to Cyrus. They bring five wagon-loads of large stones. Seuthes has no soldiers. Thence he advances through Phrygia five stations, thirty parasangs. From sea to sea. Soldiers, do not approach. Abrozelmes comes with thirty robbers.

- 9. Inflect sini in the indicative imperfect.
- 10. Decline πεδίον, όδός and ληστής.
- 11. Inflect τιμάω in the active indicative present.
- 12. Derive and give the etymon of period, comma, colon and semicolon.

- 13. Derive the name of some country from ποταμός and some other Greek word, and state why the country was so named.
- 14. Explain how we obtain the English word ephemeral from the Greek words $\hat{\epsilon}\pi i$ and $\hat{\eta}\mu\hat{\epsilon}\rho\alpha$. Illustrate the explanation by a diagram.
- 15. What did the Greeks mean by accent $(\pi\rho\sigma\sigma\omega-\delta ia)$, and wherein does our accent differ from that of the ancients?

Examination Papers.

POLITICAL ECONOMY.

JUNE, 1879.

POLITICAL ECONOMY.

- 1. Define Political Economy, and explain such terms as need explanation.
 - 2. Define wealth.
 - 3. What things are necessary to produce wealth?
 - .. When are natural agents wealth?
 - 5. Define the terms demand and supply.
- 6. State and illustrate the first law of demand and supply.
- 7. State and illustrate the second law of demand and supply.
 - 8. What is meant by a division of labor?
- What are the advantages and the disadvantages of such a division?
 - Explain the relation of capital to labor.
 - 11. What led to the use of money?
 - 12. What is money?
- 13. Why have gold and silver been adopted as money by all civilized peoples?
- 14. What has led to the use of substitutes for money, and what are these substitutes?
 - 5. Why is inconvertible paper money an evil?

Examination Papers.

PERSPECTIVE DRAWING.

JUNE, 1879.

PERSPECTIVE DRAWING.

- 1. Define parallel perspective.
- 2-6. Define the following terms used in perspective drawing: field of vision; ground-plane; picture-plane; line of direction; picture-line.
- 7. What lines have their vanishing point at the center of vision?
 - 8. What kind of lines have no vanishing points?
 - 9. What is angular perspective?
 - 10. By what other names is the picture-plane designated?

PROBLEMS.

The scale to be used in the solution of the problems is one-half inch to the foot.

- 1. Draw the horizontal line of perspective drawing across your paper, and in its center place the point of sight. Draw the line of direction six feet in length, and locate the picture line two feet below the horizontal line.
- 2. Locate the vanishing point, and find the measuring points on the H. L. for parallel perspective.
- 3. Represent the perspective appearance of a straight line 2 feet in length, 3 feet to the left of the L. of D., resting on the ground plane, against and perpendicular to the picture plane.
- 4. Represent the perspective appearance of a vertical line 6 feet in length, 2 feet to the right of the L. of D., and 2 feet behind the picture plane.

- 5. Reconstruct the preliminary work of the above, with the picture line three feet below the H. L. On the ground, 1½ feet to the left of the L. of D., and resting against the picture plane, draw a square in perspective drawing, 2 feet on each side.
- 6. At an equal distance to the right of the L. of D., draw a similar square, and on it construct a perspective cube.
- 7. Reconstruct the work of the 5th problem, and on the square, as a base, construct a prism ? feet in height.
- 8. On the right of the L. of D. draw a square, the same as in problem 6; on this square, as a base, construct a pyramid ? feet in height.
- 9-10. Draw a horizontal line across your paper, in the middle of which place the C. of V., and draw the line of direction 6 feet in length. Locate the picture line z_2^1 feet below the H. L. Find the vanishing points of horizontal lines forming angles of 45° with the picture plane, to the right and the left of the L. of D. Find their respective measuring points.
- 11. On the ground plane, directly opposite the eye of the observer, draw a perspective square, measuring $2\frac{1}{2}$ feet on each side, the sides forming angles of 45° with the picture-plane.
- 12. Reconstruct the work of problem 11th, and on the square construct a cube.
- 13. Reconstruct the preliminary work of problem 11th, and 3 feet to the left of the L. of D. draw a square, measuring $2\frac{1}{2}$ feet on each side, resting on the ground against the picture-plane, and the sides forming angles of 45° with the picture-plane; on this square, as a base, construct a prism 6 feet high.
- 14. At an equal distance to the right of the L. of D. draw a square of equal size, and on this square, as a base, construct a pyramid 7 feet high.
- 15. State which of the above problems are in parallel and which are in angular perspective.

Examination Papers.

HISTORY

JUNE, 1879.

HISTORY

- 1. Outline briefly the career of Richelieu.
- 2. What period was occupied by the reign of Louis XIV; and into what eras was it divided?
- 3. What was the state of affairs in France after the revocation of the Edict of Nautes, and what was the result of this measure?
 - 4. What was the true character of the age of Louis XIV?
- 5. What caused the accession of the House of Brunswick to the English throne?
 - 6. What wars occurred during the reign of George II?
- 7. During whose reign did England obtain possession of India?
- 8. Who was the greatest king of Prussia, and what was accomplished by him?
- 9. Why did Russia play so slight a part in European history up to the eighteenth century?
- 10. What caused the war between Peter the Great and Charles XII, and what was its result?
- 11. What was the condition of France at the close of the reign of Louis XV?
 - 12. What was the financial policy of Necker?
 - 13. What is meant by the States-General?
- 14. What sweeping reforms were made by the National Assembly on the 4th of August, 1789?
 - 15. What period was occupied by the Reign of Terror?
- 16. What was the effect of the execution of Louis XVI upon the relations of France with the rest of Europe?
 - 17. What brought the Reign of Terror to a close?
- 18. What was the general influence of the French revolution?

- 19. Through what forms of government did France successively pass from 1783 to 1815?
 - 20. Give an outline of the career of Napoleon Bonaparte.
- 21. What facts mark the nineteenth century as distinctly different from any previous age?
 - 22. What was the Holy Alliance?
- 23. What changes were made by the Reform Bill passed in the reign of William IV?
 - 24. When did Victoria begin to reign?
 - 25. What were the Corn Laws?
- 26. Who were the Chartists, and what changes did they demand?
 - 27. What was the cause of the Crimean war?
- 28. What measures of Charles X led to the revolution of 1830?
 - 29. What led to the revolution of 1848?
 - 30. What was the Coup d'État of Louis Napoleon?
- 31. What was the real, and what the pretended, reason of the Franco-Prussian War?
- 32. Under what circumstances did Victor Emanuel become king of Sardinia?
 - 33. What was the policy of Count Cavour?
 - 34. When did Italy finally become free and united?
- 35. What was the nature of the German Confederation made at the downfall of Napoleon I?
- 36. What was the effect on Germany of the French revolution of 1848?
- 37. What was the result of the struggle between Prussia and Austria on the Schlesevig-Holstein question?
- 58. What terms were imposed upon France at the close of the Franco-Prussian war?
- 39. When did the king of Prussia become Emperor of Germany?
 - 40. What is the nature of the German Constitution?

Examination Papers.

COMPOSITION AND ELOCUTION.

COMPOSITION AND ELOCUTION.

SECOND YEAR.

- 1. Give an outline of the subject of Style in composition.
- 2. Give the rules for Harmony as an element of Style.
- 3. Give an outline of the subject of Elocution.
- 4. Give rules for the use of pauses in reading.
- 5. Name the figures of speech illustrated by the following sentences, criticising any that are faulty:
 - (a.) The hedges are white with May.
 - (b.) Faith builds a bridge across the gulf of death.
 - (c.) The string let fly,
 Twang'd short and sharp, like the shrill swallow's cry.
 - (d.) He was bold as a lion.
 - (e.) Daughter of the sober twilight, Lustrous planet, ever shining.
 - (f.) The rosy light is dawning in the east.
 - (g.) The ship wanders midst the blind waves.
 - (h.) Night dropped her sable curtain down, and pinned it with a star.
 - (i.) An old man of eighty winters.
 - (j.) The mingling tempest waves its gloom.
- 6. State, with reference to each of the following examples, what quality of good style is illustrated, or what requisite is disregarded:
 - (a.) After a short time he came to himself, and the next day they put him on board his ship, which conveyed him first to Corinth, and thence to the island of Ægina.
 - (b) If he was not the greatest king, he was the greatest actor of majesty at least, that ever filled a throne.

- (c.) Cannon to right of them,
 Cannon to left of them,
 Cannon in front of them,
 Volleyed and thundered.
- (d.) He would still have had a moderate competence, after all his losses, if he had practised a strict economy.
- (e.) In peace, children bury their parents; in war, parents bury their children.
- (f.) I never expect to see Europe.
- (g.) The house was closely crowded with an immense number of people.
- (h.) Philadelphia is the largest in extent, but New York contains a greater number of inhabitants.
- (i.) Hark to the brazen blare of the bugle! Hark to the rattling clatter of the drums!
- 7. Indicate the pronunciation of the following words: Diploma, disputable, excise, finance, gospel, oath (sing. and plur.), placable, piquant, pretty, truth (sing. and plur.), sojourn, suite, tyrannic, yagary, wrong.
- 8. Give the nationality and time of writing of each of the following authors, and state to what division of literature the greater part of the writings of each belongs:

Cowper, Irving, Gibbon, Hawthorne, Agassiz, Carlyle, Chateaubriand, Willis, Motley, Tyndall, Goldsmith, Goethe, Ruskin, Lowell, George Eliot.

- 9. Define poetic accent; a poetic foot. Name and define the poetic pauses.
- 10. Scan the following lines, describing each so as to state the number and kind of feet of which it consists:
 - (a.) There is a pleasure in the pathless woods.
 - (b.) You must wake and call me early, call me early, mother dear.
 - (c.) I saw from the beach, when the morning was shining.
 - (d.) Nobody knew how the fisherman brown.
 - (e.) And the sinuous paths of lawn and of moss.
 - (f.) Come, with thy sweeping cloud, and starry vest.

Examination Papers.

BOTANY

BOTANY.

- 1. What is Botany?
- 2. Classify the organs of a plant.
- 3-5. What are annuals, biennials and perennials?
- 6. What are the three ways in which biennials and perennials store up nourishment?
- 7. What distinction do you make between primary and secondary roots?
 - 8-10. Define the terms: node; internode; axil.
- 11-12. Describe the stems of the exogenous and of the endogenous plants.
- 13-15. What are the following named parts of a leaf? blade; foot-stalk; stipules.
- 16-17. How do the reticulated differ from the parallel veined leaves?
- 18-19. Describe the pinnately and the palmately veined leaves.
 - 20. Illustrate the same by means of a drawing.
- 21-22. Pinnately and palmately compound leaves are formed on the general plan of what simple leaves?
- 23. When is the arrangement of leaves said to be whorled?
- 24-25. When is inflorescence axillary, and when terminal?
- 25. What organs are necessary to constitute a perfect flower?
 - 26. What is the function of the perianth?

- 27. In what part of a flower is the pollen formed, and of what use is it?
- 28. What provision does nature make for the growth of the young plant at the time of its germination?
 - 29. What is the function of the sunlight in vegetation?
- 30. What is the relation of the vegetable to the animal and the mineral kingdom?
- 31. Of what use are plants to animals in connection with respiration?
 - 32. What constitutes a species in botany?

PART SECOND.

Describe the parts of the plant before you, in accordance with the appended order of description:

- 1. Root -Kind; as primary or secondary, &c.
- 2. Stem.—Class; character; direction of growth.
- 3. LEAVES.—Kind; venation; form; margin; arrangement.
- 4. INFLORESCENCE.—Kind, as solitary or clustered; terminal or axillary.
- 5. CALYX.—Kind, as monosepalous or polysepalous; insertion.
 - 6. SEPALS.—Number; form; color.
- 7. COROLLA.—Kind, as monopetalous or polypetalous; insertion; and, if monopetalous, form.
 - 8. PETALS.—Number; cohesion; color.
 - 9. STAMENS .- Parts; number; insertion.
- 10. PISTIL.—Parts; kind, as simple compound or multiple.
- 11. OVARY.—Number of cells; simple, compound or multiple.
 - 12 FRUIT.—Kind, as dehiscent or indehiscent.
- 13. FLOWER.—Complete or incomplete; regular or irregular; perfect or imperfect.
 - 14. CLASS .-
 - 15. Division.—
 - 16. ORDER OR FAMILY.-
 - 17. SCIENTIFIC NAME.—
 - Common name.—

Examination Papers.

GEOMETRY

GEOMETRY.

- 1. Name and define the geometrical magnitudes.
- 2. In what cases are two triangles equal in all respects?
- 3. What is the measure of the area of a triangle? of a parallelogram? of a trapezoid?
- 4. In what ways can you prove that two straight lines are parallel?
- 5. Prove that the two diagonals of a parallelogram bisect each other; and the sum of their squares is equivalent to the sum of the squares of the four sides of the parallelogram.
- 6. What are mutually equiangular polygons? similar polygons?
- 7. Prove that similar triangles are to each other as the squares of their homologous sides.
- 8. What is the measure of an angle at the center of a circle? at the circumference? of an angle formed by a tangent and a chord? of one formed by a secant and a tangent? of one formed by two chords intersecting within a circle? of one formed by two secants intersecting without a circle?
- 9. Prove that the square of a line bisecting any angle of a triangle, together with the rectangle of the segments into which it cuts the opposite side, is equivalent to the rectangle of the two sides which include the bisected angle.

Solve the following problems:

10. Given the radius of a circle unity, find the areas of regular inscribed and circumscribed hexagons.

- 11. From the extremities of the base of any triangle draw lines bisecting the other sides; these two lines intersecting within the triangle will form another triangle on the same base. How will the area of this new triangle compare with that of the whole triangle?
- 12. If we assume the diameter of the earth to be 7956 miles, and the eye of an observer to be 40 feet above the level of the sen, how far distant will an object be that is just visible on the earth's surface?
- 13. When is a line perpendicular to a plane? when parallel? when is a plane perpendicular to another plane? when parallel?
- 14. If two lines are parallel, prove that they will be equally inclined to any given plane.
- 15. Prove that the sum of the plane angles forming any solid angle is always less than four right angles.

Examination Papers.

ALGEBRA.

ALGEBRA.

- 1. Give the three principal steps in the solution of a problem.
- 2. A sets out from a certain place, and travels at the rate of 7 miles in 5 hours; and 8 hours afterwards, B sets out from the same place in pursuit, at the rate of 5 miles in 3 hours. How long and how far must B travel before he overtakes A?
- 3. A corn factor mixed wheat flour, which cost him 10 shillings per bushel, with barley flour, which cost 4 shillings per bushel, in such a ratio as to gain 43\frac{3}{4} per cent. by selling the mixture at 11 shillings per bushel. Required the ratio.
 - 4. What is the General Solution of a Problem?
- 5. A general lost in battle an $\frac{m}{n}$ th part of his army, killed, and an $\frac{a}{b}$ th part taken prisoners; he then had s men left. How many had he at first?
 - 6. In what does the Discussion of a Problem consist?
- 7. A man dying left two sons, the elder of whom was 30 years of age, and the younger 18 years of age. In how many years after the death of the father was the elder son twice as old as the younger son? Interpret the result, and modify the problem, by changing the absurd conditions.
- 8. Give the values of each of the following expressions; $\frac{0}{A}, \frac{A}{\infty}, 0$

- 9. In the Problem of the Couriers, the value of t becomes $\frac{d}{a-b}$ and that of x, $\frac{ad}{a-b}$. Discuss the problem under the supposition that a=b, and d=a.
- 10. If one inequality be subtracted from another subsisting in a contrary sense, what will be the result? Illustrate and explain this.

11. Given $\frac{x-4}{8} - \frac{y-10}{6} > 1$ and $\frac{3x-24}{4} + \frac{x-y}{2} = 13$,

to find the limits of x and y.

- 12. What does each term of a fractional exponent signify?
- 13. What is a surd? Give an example.
- 14. What is the cube root of $x^{3} 12x^{5} + \frac{195}{4}x^{4} 70x^{3} + \frac{195x^{3}}{16} \frac{3x}{4} + \frac{1}{64}$?
- 15. In what two ways is the Degree of a Radical Quantity expressed?
 - 16. Find the 4th root of $\frac{4\sqrt[3]{4}}{3}$.
 - 17. Simplify $\left\{ \frac{2\sqrt{3}}{3\sqrt[3]{72}}, \frac{2\sqrt[3]{108}}{3(3)^{\frac{1}{2}}} \right\}^{\frac{1}{2}}$
 - 18. What is a Quadratic Surd?
- 19. Multiply $a^{1} c$ by $c^{V} d$, showing that the same law of signs applies to the multiplication of imaginary quantities, as to that of other quantities.
- 20. $a+y+x\sqrt[4]{-c}=c+x+y\sqrt[4]{-a}$. From the preceding equation form two equations, and give the principle by which they are derived.
 - 21. Define a Binomial Surd.
 - 22. Find the square root of $ax-2a\sqrt{ax-a^2}$.
 - 23. Simplify $(3+\sqrt{3})(3+\sqrt{5})(\sqrt{5-2})(\sqrt{5-2})(5-\sqrt{5})(\sqrt{3+1})$
 - 24. Rationalize $\frac{1}{\sqrt{a} \sqrt[3]{b}}$.
 - 25. Simplify the equation $\frac{\sqrt{s} + \sqrt{x-a}}{\sqrt{x} \sqrt{x-a}} = \frac{n^s a}{x-a}$

HONORARY.

1. Simplify the equation $V \overline{x+\sqrt{x}} - V \overline{x-\sqrt{x}} = \frac{3}{2} \left(\frac{x}{x+\sqrt{x}} \right)^{\frac{1}{2}}$

2. Simplify
$$\begin{cases} \frac{4\sqrt[3]{1}}{5} - 2\sqrt{1} \\ \frac{1}{2}\sqrt[3]{5} + \frac{5}{4}\sqrt[4]{2} \\ \frac{1}{2}\sqrt[3]{5} + \frac{5}{4}\sqrt[4]{2} \end{cases}$$

- 3. Two men were traveling on the same road toward Boston, A at the rate of a miles per hour, and B at the rate of b miles per hour. At 6 o'clock A was at a point m miles from Boston, and at 10 o'clock B was at a point n miles from Boston. Find the time when A passed B on the road.
- 4. A and B are set to a piece of work which they can finish in thirty days, working together, for which they are to receive \$64. When the work is half fluished, A rests eight days and B four days, in consequence of which the work occupied five and a half days more than it otherwise would have done. How much ought each to recieve?
- 5. A and B start from opposite points and travel toward each other, A at the rate of three miles an hour, and B at the rate of five miles an hour. At the same time C sets out with A and travels at the rate of five miles an hour. After meeting B he turns back and travels until he meets A; he then finds that the whole time elapsed since starting is 10 hours. How far apart were A and B at the beginning?

ROCHESTER FREE ACADEMY.

Examination Papers.

GERMAN READER.

GERMAN READER.

I.

Describe the

- a. present tense.
- b. imperfect tense.
- c. perfect tense.
- d. pluperfect tense.
- e. future tense.

II.

How is the present participle used 1, 2, 3, 4, 5?

III.

How is the future participle obtained in German?

IV.

Analyze the following sentence: Der Ritter wies ihn trogig ab.

v

After which conjunctions is the subjunctive employed in German?

VI.

Where are prepositions placed in German?

VII.

Correct the sentence: Bahrend dem Rriege blieb manches mit vielem Gifer angefangene Berk unvollendet.

VIII.

Where are adverbs of place put?

IX.

Translate:

- a. These ungrateful people never think of the obligations which they owe.
 - b. Our lost opportunities never return.
- c. The tribes wandering in the interior of Africa are not yet all known.
 - d. The king commanded the golden goblet to be brought.
 - s. William of Orange, it is said, was taciturn.

Х.

Translate:

Joh.—Ein güt'ger Herr thut seine Pforten auf Für alle Gäste, keinen schließt er aus:
Frei wie das Firmament die Welt umspannt,
So muß die Gnade Freund und Feind umschließen;
Es schickt die Sonne ihre Strahlen gleich Nach allen Räumen der Unendlickeit;
Gleichmessend gießt der Himmel seinen Thau Auf alle durstenden Gewächse aus;
Was irgend gut ist und von oben kommt,
Ist allgemein und ohne Vorbehalt;
Doch in den Falten wohnt die Finsterniß!

Examination Papers.

GERMAN GRAMMAR.-A.

GERMAN GRAMMAR A.

T.

- a. How many parts of speech are there in German?
- b. What is a double yowel?
- c. What is a compound consonant?
- d. What is a diphthong?

II.

Render in German the phrases:

- a. There is, there are, and there were.
- b. I do not praise. Do you praise?
- c. To be wrong.
- d. To be right.
- e. I am to.

III.

Translate:

- a. Rero und Calignia waren Tprannen.
- b. Friedrich der Große und Georg Bafhington waren Ehren-
- c. Russia has carried on a long and bloody war against Poland.
- d. The American soldiers have conquered the British soldiers.
 - e. Nelson is as celebrated as Wellington.

IV.

- Decline the definite article.
- b. Decline the indefinite article.
- c. Decline Der gute, alte, rothe Bein.
- d. Decline Schone, neue Rleider.
- e. Decline Ein armer, alter Mann.

V.

Give the gender of the following nouns:

a. Unfunft. b. Wachholber. c. Mädchen, d. Ginfünfte. c. Freiheit.

VI.

- a. What substantives are masculine?
- b. What substantives are feminine?
- c. What substantives are neuter?
- d. What gender do compound substantives take?
- e. What gender do diminutives take?

VII.

Answer the following questions in German:

- a. Sind die Seelen der Menschen fterblich?
- b. 3ft Franfreich ein Raiferthum?
- c. Bar Sofrates der Lehrer Alexander's?
- d. Belches ift die Hauptstadt Amerita's?
- e. Warmn find Gie nicht im Theater gewesen?

VIII.

Write out six German double gender nouns, and give their definitions.

IX.

Give the principal parts of

a. muffen. b. durfen. c. follen. d. wollen. e. fonnen.

X.

Conjugate:

- a. Soben in the present.
- b. reden in the perfect.
- c. laffen in the first future.
- d. mogen in the first conditional.
- e. dürfen in the pluperfect.

Examination Papers.

GERMAN GRAMMAR.-B.

GERMAN GRAMMAR B.

T.

- a. How are adverbs formed from nouns?
- b. How are adverbs formed from participles?
- e. How are adverbs formed from adjectives?
- d. How are adverbs formed from pronouns?
- e. How are adverbs formed from verbs?

II.

Give the principal parts of

a. fonnen. b. wollen. c. follen. d. dürfen. e. muffen.

III.

Decline the first, second and third persons in the singular and plural numbers.

IV.

Give the prepositions governing the accusative ease?

v.

Give the positive of notil.

Give the comparative of vict.

Give the superlative of gern.

VI.

- a. How is the interrogative pronoun mer used, and to what does it refer.
 - b. How is mas used?
 - c. To what does weither refer?
 - d. When is was für ein used?
 - e. How is the present participle formed?

VII.

Decline weither in the singular and in the plural.

VIII.

Conjugate:

- a. Effen in the present.
- b. Brechen in the imperfect.
- c. Sterben in the first conditional,
- d. Denfen in the pluperfect.
- e. Bleiben in the first future.

IX.

Translate:

- In 1812 Napoleon went to Moscow.
- b. The three hundred Lacedaemonians, in the pass at Thermopylæ, did not flee, but died for their country.
- c. The Prussian soldiers fought like heroes, in the last war against the Austrians.
 - d. The last storm has torn many limbs from the trees.
- e. I came to you, and threw myself at your feet, but you would not help me.

X.

Translate:

Was bin ich mehr als ihr?

Am 27. April 1875 trat die Oder aus ihren Ufern, durchbrach Dämme, rig Brücken ab, warf Häufer um und wies vielen Menschen ihren Sig auf den Sächern oder auf den Bäumen an, wo selbst die Bögel nicht mehr fügen wollten. Kinder schrieen, Mütter jammerten, Männer klagten: Alles rings umher war voll Jammer und Noth. Edle Menscheherzen suhren in Kähnen ab und zu und seiten Greise und Beiber auf's Trockne, und Händer von Schwinmenden ragten aus den Fluthen empor und trugen Kinder zu ihren Müttern an's Land, — furz, Noth und Hüsse schwinkers einander zuvorzuthun; aber die Noth hatte lange die Uebermacht.

Das ebelfte Meuschenherz unter allen schlug aber biesmal in einer Berzogsbruft. Diese öffnete sich zusammt Borse und Hans für hunderte von Unglücklichen. Nicht genug! Bald ftand der Berzog auch am Ufer, wo ihn Flebende von allen Seiten umringten.

Eine Mutter fiel por ihm nieber und flehte jammernd um ben Befchl, ihre Rinder ju retten. Er bot Geld aus, aber Diemand hatte das Berg, es zu verdienen ; benn gar ju schaurig rauschte bie immer höher fteigende Fluth, und eignes Leben ftand gegen fremdes in ber Bage. Da wieberhallte in Leopolds Bergen das mahnende Bort: "Bei ba fuchet feine Geele gu erhalten, ber wird fie verlieren; und wer fie verlieren wird, der wird ihr gum leben verhelfen!"-und ichon ftand er felbft im Rahne und antwortete benen, die ihm abriethen : "Was bin ich mehr als ihr?" und dahin ichwantte ber Nachen über die rauschende Fluth. Schon nabert er fich bem jenfeitigen Damme ; jett ift er nur noch brei Schritte bavon ; schon sieht man im Beifte gerettetes Leben-ach, ba ichlug plotlich ber Rahn um, und-bie Bellen ber Ober fangen ein Grablied, dazu gang Frankfurt, ja gang Europa weinte. hatte fein Leibes Leben verloren, aber feiner Seele gum Leben verholfen.

Examination Papers.

LATIN GRAMMAR.

LATIN GRAMMAR.

1.—Render into English:

- 1. Alter militum fugit. 2. Timor hostium crescit.
 3. Te fortunae tuae poenitet. 4. Frater oblitus est patriae. 5. Mihi nomen Cicero est. 6. Finem labori nox attulit. 7. Duae legiones quae proximae conscriptæ erant, praesidio impedimentis erant. 8. Turris pedes ducentos alta est. 9. Audio amicum aegrotum esse-10. Aqua est gravior aere.
- 2.—Give the case and the rules for governing militum, hostium, fortunae, patriae.
- 3.—Give the case and the rules for governing labori, mihi, praesidio.
 - 4.—The same for pedes and amicum.
 - 5.—Care and government of aere.

6.—Render into Latin:

1. The fields of the king are beyond the river. 2. This book is my brother's. 3. The soldiers are eager for glory. 4. He placed a wall around the city. 5. The boys ought to study literature. 6. He pretended flight because he was unequal to the three. 7. I see that the mountain is large. 8. Who taught you music? 9. He will liberate you from great fear. 10. When the sun had risen, the Romans saw the enemy.

7.—Translate:

Apud Helvetios nobilissimus et ditissimus fuit Orgetorix. Is conjurationem nobilitatis fecit, et civitati persuasit, ut de finibus suis cum omnibus copiis, exirent. Facilius eis persuasit, quod undique, loci natura Helvetii continentur.

- 8.—Parse persuasit.
- 9.—Compare facilius.
- 10 Why are civitati and eis in the dative?
- 11.-Translate:

Ubi de ejus adventu Helvetii certiores facti sunt, legatos ad eum mittunt, qui dicerent sibi esse in animo sine ullo maleficio iter per provinciam facere.

- 12.—Why is dicerent in the subjunctive?
- 13.—Parse qui.
- 14.—Translate:

Hoc praelio facto, reliquas copias Helvetiorum ut consequi posset, pontem in Arare faciendum curat, atque ita exercitum transducit.

- 15.—Parse facto.
- 16.-Parse ita.
- 17 .- What part of speech is faciendum?
- 18.—Translate:

His Caesar ita respondit: Sibi minus dubitationis dari, quod eas res, quas commemorassent, memoria teneret. Si veteris contumeliae oblivisci vellet, num recentium injuriarum deponere posse?

- 19.—Parse dubitationis.
- 20.—Give three English derivatives from deponere.
- 21.—Translate:

Caesari cum id nuntiatum esset, maturat ab urbe proficisci, et in Galliam ulteriorem conetndit.

- 22.—Give the principal parts of proficisci.
- 23. Give the principal parts of contendit.
- 24.—Parse in.
- 25.—Parse id.

ROCHESTER FREE ACADEMY. Examination Papers. LATIN COMPOSITION JUNE, 1879.

LATIN COMPOSITION.

TRANSLATE INTO LATIN:-

- 1. The harangues of Thucydides contain so many obscure and involved sentences that they can scarcely be understood, which, in civil eloquence, is a very great fault.
- 2. Who is he that professes himself innocent in regard to all the laws? Granting this to be so, how confined an innocence it is to be good according to law. How many things do filial duty, humanity, liberality, demand; all of which are beyond (the range of) the public law?
- 3. There are letters extant of Cicero to his brother Quintus, in which he exhorts and admonishes him to imitate his neighbor.
- 4. By the Cincian law it is provided that no one shall receive compensation, or a gift, for pleading a cause.
- 5. A bad man will never abstain from crime on this account, that he thinks it naturally base, but because he is afraid that it may get abroad.
- 6. At this time the republic does not interest me; not as if there were anything dearer to me than the republic, or should be; but even Hippocrates forbids to apply medicine to those whose cure is desperate.
- 7. It cannot fail to be characteristic of the same man who approves the bad to disapprove the good.
- 8. O that Paris had been overwhelmed in the raging waters, when, with his fleet, he was directing his course to Lacedemon!
 - 9. A dwarf is not great though he stand on a moun-

tain; a colossus will retain its magnitude even though it stand in a well.

- 10. The stoics give (us) trifling arguments why pain is not an evil; as if the difficulty were about the word and not the thing.
- 11. After Perseus had made an end of speaking, the eyes of those who were present were turned upon Demetrius, as if he would immediately reply.
- 12. In all kinds of business, diligent preparation must be made before you set about it.
- 13. When with a vigorous and attentive mind we contemplate those things which have passed, then the result is, that regret follows if they are bad, joy if they are good.
- 14. Since there are in us design, reason, foresight, God must needs have these very things in greater measure.
- 15. Go at length from the city; lead all thy (associates) with thee; or, if not, as many as possible; thou wilt deliver me from great fear, provided there be a wall between me and thee.

Examination Papers.

CÆSAR

CÆSAR.

I.

Translate:

Ipse, Divitiăcum Aeduum magnopere cohortatus, docet, quanto opere reipublicae communisque salutis intersit, manus hostium distineri, ne cum tanta multitudine uno tempore confligendum sit. 1d fieri posse si suas copias Aedui in fines Bellovacorum introduxerint, et eorum agros populari coeperint.

Give the rule for the case of reĭpublicae, manus, tempore, fines; the rule for the mood of intersit, distineri, confligendum sit, introduxerint. What is confligendum, and what does it denote? Give the gen. sing. of Penelope, onager, Jesus, lapis, dogma, Anio, fel, hepar, ebur, veles, lis, supellex, ille, idem, ipse, cujas, quispiam, unusquisque; the dat. sing. of ullus, caro, ceres, senex; the comparative of capax, beneficus, malus; the superlative of facilis, miser, superus; the synopsis of laudo in the indicative and the subjunctive active, third person singular.

TT.

Translate:

Ibi, vadis repertis, partem suārum copiārum transducĕre conāti sunt, eo consilio, nt, si possent, castellum, cui praeĕrat Quintus Titurius legātus, expugnārent pontemque interscindĕrent: si minus potuissent, agros Remōrum popularentur, qui magno nobis usui ad bellum gerendum erant, commeataque nostros prohibērent.

Give the rule for the case of copiarum, consilio, cui, usui, commeatu; the dat. sing. of cudo, Apollo, Dido, femur; the acc. sing. of tussis, navis, aer, Paris, rhus, quisque, quispiam, aliquis; the voc. sing. of Virgilius, filius, Orpheus; the abl.

sing of vis. tigris, rus signifying in the country; the first five ordinals, the second five distributives; the comparative of felix, multum, frugi; the superlative of vetus, inferns, bonus: thesynopsis of moveo in the indicative and the subjunctive passive, third person plural. How is the active periphrastic conjugation formed? The passive?

III.

Translate:

Horum adventu tanta rerum commutatio est facta, ut nostri, etiam qui vulneribus confecti procubnissent, scutis innixi, proelium redintegrarent; tum calones, perterritos hostes conspicati, etiam inermes armatis occurrerent; equites vero, ut turpitudinem fugae virtute delerent, omnibus in locis pugnae se legionariis militibus praeferrent.

Give the rule for the case of rerum, scutis, armātis, virtūte; for the mood of procubuissent, occurrêrent; the gen. plur. of Thrax, sedile, bos, domus, volucer, idem; the dat. plur. of filia, duo, acus, sus, poema, respublica; the third five ordinals; the fourth five distributives; the fifth five numeral adverbs; the comparative of iners, juvenis, senex; the superlative of clemens, magnificens, parvus, postera; the synopsis of facio in the indicative and the subjunctive active, second person plural. By what case is sub followed? fruor? noceo? obliviscor? How is the price or value expressed in Latin? the place to which? the degree of difference? When does a relative clause take the subjunctive?

IV.

Trauslate:

Quod ubi Crassus animadvertit, suas copias propter exiguitatem non facile diduci, hostem et vagari et vias obsidere et castris satis praesidii relinquere, ob eam caussam minus commode frumentum commeatumque sibi supportari, in dies hostium numerum augeri, non cunctandum existimavit, quin pugna decertaret.

Upon what do supportari and augeri depend? Govern sibi. Give the synopsis of munio in the indicative and the subjunctive passive, first person plural; the second person

singular, indicative present, future and future perfect of volo; the perfect and future infinitives, active and passive, of fero; the present imperative, singular and plural, of fio, edo, eo. How is the name of a town in which expressed in Latin? duration of time? cause? deprivation? By what case is misereor followed? satisfacio? What is the use of the supine in um?

V.

Translate:

The soldier fears the arrows of the enemy. The enemy surrendered themselves to Caesar. Ariovistus led his forces past the camp of Caesar. The army of L. Cassius was sent under the yoke. One part commences at the river Rhone. Caesar commanded the soldiers to depart from the town.

Examination Papers.

HOMER'S ILIAD

Homer's Iliad.

BOOK I.

- 1. Give some general account of the author of the Iliad, so far as you can, in regard to the age in which he is supposed to have lived, and the influence of his writings upon the Greek writers who came after him.
- 2. (a.) What kind of poem is the Iliad, and why so designated?
- (b.) What is the metre in which it is written, and what Latin poem can you name written in the same.
- 3. (a.) What great difficulty meets one in attempting to read Greek verse, if he has acquired the habit of pronouncing Greek with the ictus upon the syllable having the accentual mark?
- (b.) What, probably, was the nature of the Greek accent?
- 4. (a.) Explain, as well as you can, the relation of the digamma to the hiatus occurring in Homer unless it be supplied.
- (b.) Illustrate, by supplying the digamma in the following verse:

Πίμπλαντ', ὄσσε δέ οί πυρὶ λαμπετόωντι ἐίκτην.

5. TRANSLATE:

Καὶ τότε δή θάμσησε, καὶ ηὖδα μάντις ὰμύμων οὕτ' ἄρ' όγ' εὐχωλῆς ἐπιμέμφεται, οὕθ' ἑκατόμβης, ἀλλ ἔνεκ' ἀματῆρος, δν ἢτίμησ' 'Αγαμέμνων, οὐδ' ἀπέλυσε θύγατμα, καὶ οὐκ ἀπεδέξατ' ἄποινα.

τούνεκ ἀρ ἀλγε' ἔδωκεν Έχηβόλος, ἢδ' ἔτι δώσει οὐδ' ὅγε πρίν λοιμοῖο βαρείας γεῖρας ἀφέξει, πριν γ ἀπὸ πατρί φίλφ δόμεναι ἑλιχώπιδα κούρην ἀπριάτην, ἀνάποινον, ἄγειν δ' [ερὴν ἑχατόμβην ἐς Χρύσης τότε κέν μιν [λασσάμενοι πεπίθοιμεν.

6. TRANSLATE:

Ήμος δ' ή έλιος κατέδυ, και ἐπι κνέφας ήλθεν, δή τότε κοιμήσαντο παρά πρυμνήσια νηός. ήμος δ' ήριγένεια φάνη βοδοδάκτυλος 'Ηιώς, και τότ' ἔπειτ ἀνάγοντο μετά στρατόν εὐρ'νν Αγαιών τοῖσιν δ' ἔκμενον οὐρον ἴει ἐκάεργος 'Απόλλων. οἱ δ' ἰστία λευκά πέτασσαν ἐν δ' ἀνεμος πρῆσεν μέσον ἱστίον, ἀμφὶ δὲ κὐμα ρτείρη πορφύμεον μεγάλ' ἔαγε, νηὸς ἰούσης δ' ἔθεεν κατά κῦμα, διαπρήσσουσα κέλευθον. αὐτάρ ἐπεὶ β΄ ἴκοντο κατά στρατόν εὐρὺν 'Αγαιὄν, νῆμ μὲν οῖγε μέλαιναν ἐπ ἡπείροιο ἔρυσσαν ὑφοῦ ἐπὶ φαμάθοις, ὑπὸ δ' ἔρματα μακρά τάνυσσαν εὐτοὶ δ' ἐσκίδναντο κατά κλισίας τε νέας τε.

7. TRANSLATE:

Τέτλαθι, μῆτειι ἐμή, και ἀνάσχευ, κηδυμένη περ, μή σε, φίλην περ ἐοῦσαν, ἐν ὀφθαλμοῖσιν ἴδωμαι θεινομένην · τότε δ' οὖτι δυνήσομαι, ἀχνύμενός περ, χραισμεῖν · ἀργαλέος γὰρ ' Ολύμπιος ἀντιφέιεσθαι. ἤδη γάρ με καὶ ἄλλοτ' ἀλεξέμεναι μεμαῶτα ῥίψε, ποδὸς τεταγών, ἀπὸ βηλοῦ θεσπεσίοιο. πῶν δ' ἡμαρ φερόμην, ἄμα δ' ἡελίψ καταδύντι κάππεσον ἐν Λήμνφ · δλίγος δ' ἔτι θυμὸς ἐνῆεν · ἔνθα με Σίντιες ἄνδρες ἄφαρ χομίσαντο πεσόντα.

- 8. Scan and mark the vowel quantities of the last three lines of 7.
- 9. State where the following words in 5 are made: θάμσησε, ηδόα, ὅς', τοὔνεκ', ἄλγε', ἀεικέα, δόμεναι, ἑλικώπιδα.
- 10. Derive and give the erymon of five English words from Greek roots, or stems, of words in 5.

EXAMINATION PAPERS.

HISTORY

HISTORY.

- 1. What period is known as the Dark Ages, and for what reason is this name applied?
- 2. What elements of modern society come from the blending of the Romans and barbarians?
- Give a tabular form of the Aryan tongues of Europe.
 Name the peoples successively ruling Italy from the fall of the Western Empire to the time of Charlemagne.
- 5. Name the first three dynasties ruling in France, and the founder of each.
- 6. When, and under whom, were the various divisions of England united into one kingdom?
- 7. When did the Saracens invade Spain, and how long did the kingdom endure which they there founded?
- 8. What was the extent of the possessions of Charlemagne at the beginning and at the end of his reign?
 - 9. What labors occupied the latter part of his life?
- 10. When and under what circumstances was his empire divided?
 - 11. What was the origin of feudalism?
 - 12. What three chief influences undermined it?
- 13. What was the beginning of the strife between the German emperors and the popes?
 - 14. What centuries were occupied by the Crusades?
- 15. What were the Crusades intended to accomplish, and what did they accomplish?
- 16. What was the condition of society with regard to agriculture, commerce and manufacture during the Dark Ages?
- 17. Who was emperor at the time the Lombard League was formed, and what was its result?
 - 18. When did the Troubadours and Minnesingers flourish?
- 19. On what did Edward III of England found his claim to the French throne?

- 30. When did the Norman Conquest take place?
- 21. What is the Magna Charta, and how was it obtained?
- 22. What were the Wars of the Roses?
- 23. Who were the Guelphs and the Ghibellines?
- 24. What events mark the period of transition from mediaval to modern history?
 - 25. What people took the lead in maritime discovery?
 - 26. What was the effect on trade of the sea route to India?
- 27. On what did the English found their claims to dominion in North America?
- 28. What was the advantage, and what the disadvantage, of the centralized monarchies following the overthrow of feudalism?
- 29. What is the aim of the policy called the balance of power?
- 30. Name the different possessions ruled over by Charles V, and state from whom or how he obtained them.
 - 31. What were the great events of the reign of Charles V?
- 32. When was the Diet of Augsburg held, and what was the result of it?
- 33. What led to the abdication of Charles V, and when did it occur?
- 34. What has been the verdict of historians upon Henry VIII?
- 35. To what territory was the name of Netherlands given in the sixteenth century?
 - 36. What was the character of Philip II?
 - 37. Of what did the Dutch Republic consist?
 - 38. What was the fate of William of Orange?
- 39. What was the nature of the wars of France during the latter part of the 16th century?
 - 40. Who was the last king of the House of Valois?
 - 41. What was the purport of the Edict of Nantes?
 - 42. What was the character of the age of Queen Elizabeth?
- 43. What important acts were passed soon after the accession of Elizabeth, and what was their purport?
 - 44. What was the chief doctrine of the Stuarts?
- 45. Give a general sketch of the civil war during the reign of Charles I.

- 46. What was the nature of the home and the foreign policy of Cromwell?
 - 47. When did the Restoration take place?
 - 48. What was the Bill of Rights?
 - 49. What was the character of the thirty years' war?
 - 50. What were the terms of the Treaty of Westphalia?
- 51. What period was covered by the reign of Louis XIV, and into what eras was it divided?
- 52. What was the origin of the war of the Spanish succession?
 - 53. What was the real character of the age of Louis XIV?
 - 54. What were the chief events of Queen Anne's reign?
 - 55. What war was closed by the treaty of Utrecht?
- 56. Name the sovereigns of England from the Norman conquest to the accession of the House of Brunswick.
- 57. Who was the first king of Prussia, and how did he gain that title?
 - 58. What was the cause of the Seven Years' War ?
- 59. What was the difference in the condition of Prussia at the accession and at the death of Frederick the Great?
 - 60. What were the aims of Peter the Great of Russia?
- 61. By what powers was the first partition of Poland made?
- 62. What was the condition of France when Louis XVI came to the throne?
- 03. How many representatives were sent to the States-General; where did they meet, and when?
 - 64. What led to the storming of the Bastile?
- 65. What assembly was formed on the dissolution of the National Assembly, and what factions existed in it?
- 66. What questions were voted upon at the close of the trial of Louis XVI?
- 67. What was the fate of Marat, Danton and Robespierre, respectively?
- 68. What was the general influence of the French Revolution?
- 69. What phase of French government has received the name of the Directory?
- 70. Give a brief account of the career of Napoleon Bonaparte up to his campaign in Italy.

EXAMINATION PAPERS.

ALGEBRA.

ALGEBRA.

1.- Explain the law of signs.

2.—Expand (a-b)5.

3.—Divide $x^{s_n} = 2x^{s_n}y^n = 2x^ny^{s_n} + y^{s_n}$ by $x^n + y^n$.

4.—Find the factors of a3-ab2+.abc-ac2.

5.—Find the G. C. D. of $9a^4+12a^8+10a^2+4a+1$ and $3a^4+$ $8a^3 + 14a^2 + 8a + 3$.

6.—From
$$\frac{4a-3b}{7ab(a-b)-2(a^3-b^3)} \text{ take } \frac{8a-b}{3ab(a+b)-2(a^3+b^3)}.$$
7.—Multiply
$$\frac{(a+b-c)(a-b+c)}{a-b-c} \text{ by } \frac{c+b-a}{(c-b-a)(b-c-a)}.$$

7.—Multiply
$$\frac{(a+b-c)(a-b+c)}{a-b-c}$$
 by $\frac{c+b-a}{(c-b-a)(b-c-a)}$

8.—Divide
$$\frac{a^2}{x^3} + \frac{1}{a}$$
 by $\frac{a}{x^3} - \frac{1}{x} + \frac{1}{a}$.

9.—Simplify
$$\frac{\frac{1}{x-1} + \frac{1}{x+1}}{\frac{1}{y-1} + \frac{1}{y+1}}$$

10.-
$$\begin{cases} \frac{x}{a} + \frac{y}{b} = \frac{x}{b} - \frac{y}{a} \\ x + y = \frac{4a^{2}b}{a^{2} - b^{2}} \end{cases}$$
 To find x and y .

11.—Given $\frac{x-4}{8} - \frac{y-10}{6} > 1$ and $\frac{3x-24}{4} + \frac{x-y}{2} = 13$, to find the limits of x and y.

12.—What is the square root of $a^{4m}+6a^{8m}c^n+11a^{2m}c^{8m}+6a^{m}$ $c^{3n}+c^{4n}$?

13.—What is the cube root of $x^9 + 6x^8 - 64x^6 - 96x^5 + 192x^4$ $+512x^{3}-768x-512$?

14.—Find the sum of $\sqrt{(1+a)^{-1}}$, $\sqrt{a^2(1+a)^{-1}}$, and $a\sqrt{(1+a)(1-a)^{-2}}$.

$$15.{\rm -From}~a\sqrt{\frac{|\overline{b^2x+\overline{b^2}}|}{x-1}}~{\rm take}~b\sqrt{\frac{|\overline{a^2x-a^2}|}{x+1}}.$$

16.—Simplify
$$\left\{ \frac{(\sqrt{5}+2)(\sqrt[4]{5}+\sqrt{2})(\sqrt[4]{5}-\sqrt{2})}{(\sqrt{13}+3)(\sqrt[4]{13}+\sqrt{3})(\sqrt[4]{13}-\sqrt{3})} \right\}^{\frac{1}{2}}$$

17.—Find the values of x and y in the equation $a - |-y| - x\sqrt{-c} = c - |-x| - y\sqrt{-a}$.

18.—What is the square root of $np \rightarrow 2m^2 - 2m\sqrt{np \rightarrow m^2}$?

19.—Find the factor which will rationalize $\sqrt{5} - \sqrt[4]{2}$.

20.—Given
$$\sqrt{x+\sqrt{x}} - \sqrt{x-\sqrt{x}} = \frac{3}{2} \left(\frac{x}{x+\sqrt{x}}\right)^{\frac{1}{2}}$$
 to find x .

EXAMINATION PAPERS.

RHETORIC.

RHETORIC.

I.

- 1. In Rhetoric, what three qualities are assigned to words?
- 2. To what three tests may a questionable word be subjected?
- 3. What is the final authority in regard to the character of a word?
- 4. Why is cablegram not as acceptable a word as telegram?
- 5. In common usage, with what words are aggravate and transpire confused?
- 6. State your objection to the words: jeopardize, leasing, atelier, walkist, disobedientness, periculous.

Correct:

- 7. She prepared only such articles of food as he considered healthy.
- 8. That child is likely to be killed. The day got so warm that he got ready and got off, half an hour before I got there.

II.

9. What five properties are requisite to good style?

State the usage in each of the following sentences that offends against any property named:

- 10. Never did Atticus succeed better in gaining the universal love and esteem of all men.
- 11. He told his friend that if he did not feel better in an hour he thought he had better return.
- 12. There are certain miseries in idleness which the idle can only conceive.

- 13. He merely asks leave to come and play a little solo on the flute, of his own composing.
- 14. The good old man soon grew weary of the gay life in the home of his son, who had taken first honors at college and spent much time and money in the entertainment of his sporting friends.
- 15. He was greatly indebted to, and had received many favors from, and finally was induced to repay his friend.
- 16. What principle governs in the structure of the periodic sentence?
 - 17. Change the following sentence from loose to periodic:

They determined to rebel against a nation of which they constituted a part, and to which they had shown fidelity and also to erect a bastard republic in its place.

- 18. Name three ways of acquiring a good style.
- 19. What three elements of style are sources of pleasure?
- 20. What class of themes and of language is adapted to each?

III.

- 21. To what class of writings is figurative language indigenous? Why?
- 22. Name some relations from which figures of speech are drawn.

From the following extracts, point out twelve rhetorical figures, and define each:

- O, Earth! behold, I kneel upon thy bosom,
 And bend my flowing eyes to stream upon
- 25. Thy face, imploring thee that thou wilt yield!"
- 26-27. "But they whose hearts are dry as summer dust Burn to the socket."
- 28. Hesiod says: "How often is a half greater than the whole!"
- 29-30. "Have you not room in your own country to bury your dead men. If you come into mine, we will greet you—with bloody hands, and welcome you—to hospitable graves!"
 - 31. "My May of life

Is fallen into the sere, the yellow leaf."

- 32. "Here is a letter, lady, And every word in it a gaping wound Issuing life-blood."
- 38. "Gold can not make a man happy, nor rags render him miserable."
- 34. Give an original example of simile, and convert it into a metaphor.
- 35. Give an original example of metonymy and of synec-doche, explaining in what the difference consists.
- 36. Give rules by which simile and metaphor should be governed.

IV.

- 37. To what is accent due?
- 38. What effect does it produce in prose and in poetry?
- 39. What name is given to this effect?
- 40. On what does the kind of foot in verse depend?
- 41. What characterizes the meter of classic, of English verse?
 - 42 Name and describe four varieties of meter.

Classify the following extracts, according to the feet and the length of lines, and scan the same:

- 43. "Pause not to dream of the future before us:

 Pause not to weep the wild cares that come o'er us."
- 44. "'Tis the sunset of life gives me mystical lore,
 And coming events cast their shadows before."
 - "While I touch the string,
- 45. "While I touch the string,
 Wreath my brows with laurel."
- 46. "For us the zephyr blows,
 For us distils the dew."
- 47. Describe the three hymn meters in general use.
- 48. Give a complete definition of poetry.
- 49. Name and define six classes of poetry.
- 50. Give examples under each head.

HONORARY.

Write a composition, in length one page, on any topic suggested by the study of Rhetoric. If preferred, write verses, exemplifying the various meters.—This will count five.

EXAMINATION PAPERS.

COMPOSITION AND ELOCUTION.

COMPOSITION AND ELOCUTION.

. What is Elecution? What are its principal divisions?

"I am monarch of all I survey.

My right there is none to dispute; From the center all round to the sea I am lord of the fowl and the brute.

- O, Solitude! where are the charms
 That sages have seen in thy face?
 Better dwell in the midst of alarms
 Than reign in this horrible place."
- 2. Indicate the most emphatic words in the preceding lines, by underscoring each.
 - 3. Indicate, by vertical lines, the rhetorical pauses.
- 4. Who was the author of these lines? In what century did he write?
 - 5. Define Rhetoric?
- 6. Write five of the most expressive words you can think of beginning with scr; with cr; with sn.
- Give five words that have nearly the same meaning as useful.
- Give five words that have nearly the same meaning as purpose.
- 9. What is the difference in meaning between expect and hope? between small and slender? between famous and notorious? between lazy and idle? between enlarge and increase.
- 10. What word is stronger in meaning than flow? than wonder? than pleasant? than sadness? than destroy?

Express each of the following statements in more simple language:

- 11 The progress of the devouring element could not be arrested.
- $1\varepsilon.$ A vast concourse of people assembled to be hold the spectacle.
- 13. They called into requisition the services of the physician.
 - 14. Define Brevity; Circumlocution.
- 15. How may two or more propositions be combined into one complex sentence?

So combine the following statements:

In the Olympic games, the only reward was a wreath composed of wild olives.

The Olympic games were regarded as the most honorable. They were so regarded, because sacred to Jupiter.

They were so regarded, also, because instituted by the early Greek heroes.

16. Combine the following statements into one simple sentence:

The president called a meeting.

It was a meeting of his cabinet.

The meeting was called suddenly.

It was called late at night.

It was called at the suggestion of Adams.

The purpose of its calling was to deliberate on the relations with France

- 17. Change the arrangement of the following sentence in five different ways, without altering the sense: He reads every morning after breakfast regularly ten pages of Cicero.
 - 18. What is a Periodic sentence?

Change the following loose sentence into a periodic: We came to our journey's end, at last, with no small difficulty, after much fatigue, through deep roads and bad weather.

19. State the difference between direct and indirect discourse.

Change the following passage from the direct to the indirect mode of speech:

- "Ah! to be sure," said Mr. Pickwick; "I never thought of that. When I am in town, you'll always have somebody to sit with you. To be sure, so you will."
 - 20. Punctuate the following sentences:
- (1.) Franklin who became a great statesman and philosopher was in youth a poor printer's boy
 - (2.) To err is human to forgive divine
- (3.) He went abroad in order that he might see foreign countries
- (4.) The man who is faithfully attached to religion may be relied upon
- (5.) Reputation virtue happiness depend greatly on the choice of companions
- (6.) Force of voice is strength energy vivacity is life animation
- (7.) Patrick Henry commenced by saying It is natural to man to indulge in the illusions of hope
- (8.) Endeavor to excel much may be accomplished by perseverance
- (9.) All our conduct towards men should be influenced by this important precept Do unto others as ye would that they should do unto you
- (10.) Religion who can doubt it is the noblest theme for the exercise of the intellect
- 21. Illustrate either Description, Narration or Exposition, by writing an exercise in composition, consisting of at least seventy-five words.

EXAMINATION PAPERS.

PHYSIOLOGY AND HYGIENE.

PHYSIOLOGY AND HYGIENE.

- Of what use are the bones?
- 2. What is the mechanical advantage of having the long bones hollow?
- 3. When a muscle contracts, how are its form and consistency changed?
- 4. Why are the bones of children more flexible than those of adults?
 - 5. Of what use are the curvatures of the spinal column?
- 6. In order that exercise may be the most beneficial, how should it be taken?
- 7. Why do children need more food in proportion to their size than adults?
 - 8. Enumerate the organic ingredients of the food.
- 9. Which of the ingredients of the food are very important in keeping the bones and teeth in a healthy condition?
- Describe the office of the stomach in the digestion of the food.
- 11. Describe the function of the small intestine in the digestion of the food.
- 12. What is the function of the villi of the small intestine?
- 13. By what two routes is the chyle conveyed into the circulation?
 - 14. How do we know that sugar is formed in the liver?
- 15. When the diaphragm contracts, how is its form altered?
- 16. By what force is the air expelled from the cavity of the lungs?

- 17. What becomes of the oxygen which disappears in the lungs?
- 18. What is the principal chemical difference between venous and arterial blood?
- 19. What change takes place in the blood while circulating through the tissues?
- 20. Why is the air that has once been breathed unfit for farther respiration?
- 21. What two things are essential in a complete system of ventilation?
- 22. Describe the experiment by which your instructor demonstrated that the expired air is heavier than the pure air of the room?
 - 23. What is the function of the pulmonary artery?
 - 24. Why is the left ventricle stronger than the other portions of the heart?
 - 25. To what is the arterial pulse due?
- 20. Describe the method by which you would check the flow of blood from a wounded artery?
- 27. How is the temperature of the body maintained independently of the external air?
- 28. Explain how the perspiration serves to moderate the heat of the body in warm weather.
 - 29. What would you do for a person with frozen hands?
 - 30. Define the process of nutrition called assimilation.
- 31. Upon what fluid do all of the tissues of the body depend for their nutrition?
- 32. What are the intermediate changes which must take place in caseine, in order that it may become musculine?
- 33. Name the secretion of the pancreas, and state its function.
 - 34. What is the general function of the nerves?
 - 35. What is the reflex action of a ganglion?

- 36. What is the difference between the function of the anterior columns of the spinal cord and that of its posterior columns?
 - 37. What is the function of the motor branch of the fifth pair of nerves?
- 38. What is the most important reflex action taking place in the brain?
 - 39. Enumerate the special senses.
- 40. Draw a diagram illustrating the origin, course and termination of the optic nerves.

EXAMINATION PAPERS.

CICERO.

cicero.

(a) What was the purpose of the oration pro Archia?
 Where and before whom was the oration delivered?
 In what year?

Give the analysis of the oration.

(b) What led to the orations in Catilinam?

What was the direct occasion of the first oration in Catilinam?

When, where and before whom were the first, second and third orations in Catilinam delivered?

2. Translate:

An vero tam parvi animi videamur esse omnes, qui in re publica atque in his vitae periculis laboribusque versamur, ut, quum usque ad extremum spatium nullum tranquillum atque otiosum spiritum duxerimus, nobiscum simul moritura omnia arbitremur? An statuas et imagines, non animorum simulacra, sed corporum, studiose multi summi homines reliquerunt, consiliorum relinquere ac virtutum nostrarum effigiem nonne multo malle debemus, summis ingeniis expressam et politam? Ego vero omnia, quae gerebam, jam tum in gerendo spargere me ac disseminare arbitrabar in orbis terrae memoriam sempiternam. Haec vero sive a meo sensu post mortem abfutura est, sive, ut sapientissimi homines putaverunt, ad aliquam mei partem pertinebit, nunc quidem certe cogitatione quadam speque delector.

3. Translate ·

Meministine me ante diem XII Kalendas Novembres, dicere in senatu, fore in armis certo die, qui dies futurus

esset ante diem VI. Kalendas Novembres, C. Manlium, audaciae satellitem atque administrum tuae? Num me fefellit, Catilina, non modo res tanta. tam atrox tamque incredibilis, verum, id quod multo magis est admirandum, dies? Dixi ego idem in senatu, caedem te optimatium contulisse in ante diem V. Kalendas Novembres, tum quum multi principes civitatis Roma non tam sui conservandi quam tuorum consiliorum reprimendorum causa profugerunt. Num infitiari potes te illo ipso die meis praesidiis, mea diligentia circumclusum commovere te contra rem publicam non potuisse, quum tu discessu ceterorum nostra tamen, qui remansissemus, caede te contentum esse dicebas?

4. Translate:

Ac si quis est talis, quales esse omnes oportebat, qui in hoc ipso, in quo exsultat et triumphat oratio mea, me vehementer accuset, quod tam capitalem hostem non comprehenderim potius quam emiserim, non est ista mea culpa. sed temporum. Interfectum esse L. Catilinam et gravissimo supplicio affectum jampridem oportebat; idque a me et mos majorum et hujus imperii severitas et res publica postulabat. Sed quam multos fuisse putatis, qui quae ego deferrem non crederent? quam multos, qui etiam defenderent? [quam multos, qui propter improbitatem faverent?] Ac si, illo sublato, depelli a vobis omne periculum judicarem, jampridem ego L. Catilinam non modo invidiae meae, verum etiam vitae periculo sustulissem. Sed quum viderem, ne vobis quidem omnibus re etiam tum probata, si illum, ut erat meritus, morte multassem, fore, ut ejus socios, invidia oppressus, persequi non possem; rem huc deduxi, ut tum palam pugnare possetis, quum hostem aperte videretis.

5. Translate:

Nature has lavished such great abundance of things, that those which are produced appear to have been bestowed upon us intentionally, not to have originated accidentally.

Grant that there is a difference between the dignity of the highest and the lowest, there is not one degree of crime in killing illustrious men, and another the obscure.

I would not deny that my language seemed harsh and atrocious; but how much more atrocious do you think that your deeds are than my words?

So live with an inferior, as you would wish a superior to live with you.

These things seem ridiculous to you, because you are not present, which, if you were to see, you could not help weeping.

If wisdom were given me with this limitation, a that I should keep it shut up, and not give it utterance, I would reject it.

Arms are of little value abroad, unless there is prudent management' at home.

In punishing injuries the law has aimed at these three things: either that it may reform him whom it punishes, or that by his punishment it may render others better, or that by the removal of had men the others may live more secure.

Largior, * gigno, * intersum, * exceptio, 4 enuncio, * consilium, vindico. * emendo. *

EXAMINATION PAPERS.

ARITHMETIC.

ARITHMETIC.

- 1. A merchant buys \$2500 worth of goods on 6 months credit, but settled his account by paying cash, a discount of 5% on the face of the bill being taken off. What was the discount, and how much does it exceed true discount, money being worth 6%?
- 2. A merchant had two notes to pay; one for \$435.10, due Jan. 1, 1873; the other for \$769.84, due March 11, 1873; how much money did it take to pay both notes Sept. 19, 1872, money being worth 7%?
- 3. What is the difference between the true and the bank discount of \$1375.50, for 60 days at 6%?
- 4. A note payable in 60 days is discounted at 1½% a month; what is the rate of interest?
- 5. A Philadelphia grain dealer bought a quantity of wheat in Chicago, and remitted in payment a draft for \$1250, at 3 months at 60, exchange \$0 discount; what did he pay for the draft?
- 6. Sold on commission goods to the amount of \$2375. After deducting 3% as my commission, I purchase with the proceeds a draft for 60 days, at 2% premium; what was the face of the draft?
- 7. A merchant in Omaha remitted to Baltimore a draft for \$7500, payable 30 days after sight at 6%; the draft cost \$7646.25; what was the rate of exchange?
- 8. A jobber owes an importer \$1000 due in 2 months, \$1500 due in 4 months, \$900 due in 6 months, and \$3000 in a year; in what time can be pay the whole debt without loss to either party?

- 9. I owe two notes, one for \$600, due June 11, and the other for \$800, due Oct. 9, and wish to discharge the debt by two equal payments made at an interval of 50 days; when must the payments be made?
- 10. A, B and C entered into a partnership and gained \$2520; A's stock was \$4800, B's \$7200, and C's gain \$840; required, C's stock, and A's and B's gain.
- 11. A, B and C engage in business; A invests his capital for 5 months and claims $\frac{4}{9}$ of the profits; B's capital is invested 6 months, and C puts in \$5000 for 4 months and claims $\frac{2}{9}$ of the profits; what were A's and B's investments?
- 12. A, B and C are employed to do a piece of work for \$26.45. A and B together are supposed to do $\frac{3}{4}$ of the work, A and C $\frac{1}{10}$, B and C $\frac{1}{20}$, and are paid proportionally. How much must each receive?
- 13. A and B form a partnership. A contributes \$7000, and is to have $\frac{2}{3}$ of the profits; B contributes \$3000, and is to have $\frac{1}{3}$ of the profits; each partner is to receive or to pay interest at 6% per annum for any excess or deficit in his share of capital. At the end of the first year the profits are \$1800. Required, the worth of each share.
- 14. Find the day of maturity, the term of discount, and the proceeds, of the following notes:

\$1962.45.

DETROIT, July 26, 1860.

Four months after date, I promise to pay to the order of James Gillis one thousand nine hundred sixty-two and $\frac{4.5}{1.00}$ dollars, at the Exchange Bank, for value received.

Discounted August 26, at 74. John Demarest.

15. \$1066.75, BALTIMORE, April 19, 1859.

Ninety days after date, we promise to pay to the order of King & Dodge one thousand sixty-six and 75 dollars, at the Citizens' Bank, for value received.

Discounted May 8, at 6%.

CASE & SONS.

EXAMINATION PAPERS.

GEOMETRY

GEOMETRY.

T.

What is the measure of an angle at the center of a circle?

Of an angle at the circumference?

Of an angle formed by a tangent and a chord?

Of an angle formed by a secant and a tangent?

Of an angle formed by two secants meeting without a circle?

Prove that the square of a line bisecting any angle of a triangle, together with the rectangle of the segments into which it cuts the opposite side, is equivalent to the rectangle of the two sides, including the bisected angle.

If two chords intersect each other at right-angles in a circle, prove that the sum of the squares of the four segments thus formed is equivalent to the square of the diameter of the circle.

П.

At a given point in a line, how will you construct an angle equal to a given angle?

How will you find the center of a given circle?

How will you construct a square that shall be equivalent to the difference of two given squares?

How will you inscribe a regular pentagon in a circle?

III.

Solve the following problems:

Given, the areas of two regular polygons of the same number of sides, the one inscribed in and the other circum-

scribed about the same circle, to find the areas of regular inscribed and circumscribed polygons of double the number of sides.

The diameter of a circle is 4; what is the area of the inscribed equilateral triangle?

The diameters of the hind and fore wheels of a carriage are 5 and 4 feet respectively, and their centers are 6 feet asunder; at what distance from the fore wheels will a line, passing through their centers, meet the ground, which is supposed to be level?

The base of a triangle is 697; one of the sides is 534, and the other 813. If a line be drawn bisecting the angle opposite the base, into what two parts will the bisecting line divide the base?

IV

When is a line perpendicular to a plane?

When are two planes perpendicular to each other?

When are two planes parallel to each other?

When is a straight line parallel to a plane?

What is a diedral angle? A solid angle? A triedral angle?

If a straight line stand at right angles to each of two other lines at their point of intersection, prove that it will be at right angles to the plane of the lines.

♠ Prove that the sum of the angles forming a solid angle is always less than four right angles.

EXAMINATION PAPERS.

ENGLISH LITERATURE.

ENGLISH LITERATURE.

I.

Who were the earliest known inhabitants of Britain?

What peoples have successively held possession of the island?

Whence came the people which formed the basis of the English race?

What were the effects of their coming?

H.

Give a sketch of the life of Chaucer.

Give a sketch of the plan of the Canterbury Tales.

Was the plan of the poem original with Chaucer?

If not, whence borrowed?

In what respects is the plan an improvement upon the original?

What excellence in making a pilgrimage the basis of the poem?

Name the other poems of Chaucer.

Name four contemporaries of Chaucer,

III.

Give a synopsis of the literature of the Elizabethan age, underscoring the names of the eminent writers.

v

Into what periods is the literary career of Milton divided? Name the productions belonging to each period.

Give a general outline of the plan of the Paradise Lost.

What was the poem originally intended to be?

Is the plan of the poem supposed to have been suggested by another poem?

If so, what poem?

What is the versification of the poem?

Did Milton use rhyme in the poems of the first period?

In those of the last?

What change of opinion did he undergo in regard to the use of rhyme?

V.

Give a sketch of the life of Scott?

Name his three most important poems.

Describe each of these.

What is the versification? How does he relieve the monotony of this kind of verse?

What led him to turn from poetry to prose?

Name and classify the novels, underscoring those which are regarded as the best.

VI.

Name the poets of the "Artificial" school.

Also those of the "Romantic" school.

In what century and by what writers was the novel developed?

In what century and by what writers was periodical literature developed?

Give a list of dramatic writers.

Give a list of writers of history.

Name five women who have attained eminence as writers.

EXAMINATION PAPERS.

GEOLOGY

CEOLOGY.

- 1. For what reason is geology eminently an out-door science?
 - 2. Of what do rocks consist?
- 3. Name and describe the most common of the materials of rocks.
 - 4. What is the characteristic of the cleavage of feldspar?
- 5. Name the three free conditions in which carbon is found in nature.
- 6. Why does the mineral limonite, on being heated, become hematite?
- 7-10. Describe the following named rocks: limestone, sandstone, conglomerate and shale.
 - 11. How does slate differ from shale?
 - 12. Why are the stratified rocks so named?
- 13. How has the great mass of igneous rocks been formed?
- 14. Under what circumstances may igneous rock be stratified?
- 15. How have certain stratified rocks been made, mainly or wholly, of organic remains?
 - 16. What are metamorphic rocks?
- 17. State the work accomplished by polyps in rock making.
 - 18. What geological work the winds have accomplished?
- 19. What modifications of the physical features of a country are occasioned by the flow of its rivers?

Flace

- 20. In what manner the delta of the Mississippi river was formed?
- 21. Enumerate the three ways in which the ocean has accomplished its geological work.
- 22. What do ripple-marks on the surface of rocks indicate?
- 23. Explain the manner in which ice is instrumental in disintegrating rocky material?
 - 24. In what manner are glaciers formed?
- 25. What reason have we for believing that the region of Rochester was, in past ages, a glacial region?
- 26. How may the direction of movement of glaciers of past ages be determined?
- 27-28. What are icebergs, and what geological work are they accomplishing?
 - 29. Through what agencies have volcanoes been formed?
- 30. How do you account for the fact that the slopes of volcanic mountains differ so greatly?
 - 31. To what is the term vein applied in geology?
- 52. What are the three ways in which the valleys of the earth have been made?
 - 33. Describe the formation of the Mississippi valley.
 - 34. What are canons?
- 35. By what physical agency have most of the mountains of the earth been formed?
- 36. How was the heat necessary for the metamorphism of the rocks principally produced?
- 37. By what physical agencies can you account for the wrinkling of the earth's crust?
- 38. At what geological phenomenon does historical geology commence?
- 39. Give a description of the nucleus of the North American continent at the close of Archæan time.
 - 40. Name the three oldest mountain chains of the globe.

- 41. How are geologists enabled to know that these mountains are the oldest?
- 42-43. What are the reasons for believing that animal and vegetable life may have existed in Archæan time?
 - 44. Why are Archæan rocks so extensively metamorphic?
- 45. Give the general characteristics of the animal and the vegetable life of the Silurian age.
- 46. When did vertebrate animal life first appear? State its characteristics?
- 47. State briefly the origin of the coal of the carboniferous age.
- 48. What animal life was peculiarly characteristic of Mesozoic time?
- 49. Why is the Tertiary age called the age of mammals? Name one living animal which is a representative of the earliest mammals.
- 50. Name the earliest subdivision of the Quaternary age in which it is known positively that man existed. Describe his mode of life at that time.

Rochester Free Academy,

EXAMINATION PAPERS.

Natural Philosophy

April, 1879.

NATURAL PHILOSOPHY.

- 1. What is the science of Pneumatics?
- 2. Why cannot water be raised in a tube, by suction, higher than 34 feet?
 - 3. What is the Torricellian vacuum?
- 4. How is the mercury in the barometer affected when carried up the side of a mountain? Give the reason for your answer.
- 5. By what simple experiment could you demonstrate the upward pressure of the atmosphere?
 - 6. What is sound?
- 7. Describe the experiment by which your instructor demonstrated the fact that, if no substance intervene between the sonorous body and the organs of hearing, no sensation of sound can be produced.
- 8. How do musical tones of high pitch differ from those of low pitch, in regard to the manner of their production?
- 9. When is one musical tone said to be the octave of another?
 - 10. Why is the term octave used in this connection?
- 11-12. What distinction do you make between free, or sensible heat, and latent heat?
- 13. Why cannot heat be communicated by convection in solid bodies?
- 14. When a pane of glass is placed so that the radiant heat of the sun can fall upon it, what becomes of the part of the heat which is not transmitted?
- 15. Why is a black coat warmer than a light colored one, when they are worn in the direct sunlight?

- 16. How do you account for the fact that liquids expand more than solids, on being equally heated?
- 17. State one very remarkable exception to the general rule that the continued withdrawal of heat from bodies causes them to contract.
- 18. How does the use of the thermometer differ from that of the pyrometer?
- 19. Why is it possible to separate alcohol from water by the process of distillation?
- 20. In a room heated by the hot air furnace, why is it not economical to have the ventilators near the ceiling?
- 21. Account for the accumulation of moisture upon the surface of the ice-water pitcher, in the summer season.
- 22. Why is dew seldom formed abundantly on a cloudy night?
- 23. Explain the manner in which the sun occasions the wind.
- 24. What is the general law of magnetic attraction and repulsion?
- 25. Indicate the polarity acquired by the fragments of a magnet, when the magnet is broken into four equal parts.
 - 26. Describe and illustrate magnetic induction.
- 27. If you had a hardened steel bar with the letter N stamped at one end, and a permanent magnet, how would you proceed to magnetize the bar so that the stamped end would be the north pole?
- 28. How may the dipping needle be used in determining the magnetic poles of the earth?
- 29. To what was the variation of the magnetic needle, as observed by Columbus, due?

PROBLEMS.

- 30. To what height may water be raised by a common pump, at a place where the mercury in the barometer stands at 24 inches?
- 31. What is the pressure of the atmosphere, in pounds, on each square inch of surface, when the mercury in the barometer at a height of 29 inches?

- 32. If a vessel whose capacity is one cubic foot has 50 cubic feet of air forced into it at a time when the barometer is at 30 inches, what pressure of air, in pounds, will it sustain on each square inch of its internal surface?
- 33. The flash of a cannon was seen, and after a period of 8 seconds the report was heard; how far off was the cannon?
- 34. Four seconds after a sudden shout the echo was heard; at what distance was the reflecting surface?
- 35. A certain musical string vibrates 256 times in a second; how many times must it vibrate in a second to produce the octave above?
- 36. To which degree of Centigrade does the fortieth degree of Reaumur's thermometer correspond?
- 37. How many times louder will the discharge of a cannon sound to a person at a distance of one mile than to another at a distance of three miles?
- 38. If a magnet attracts a soft piece of iron, at a distance of one-fourth of an inch, with a force of 2 ounces; with what force will the iron be attracted at a distance of one-eighth of an inch?
- 39. What is the latent heat of the steam generated from water that boils at a temperature of 430°?

HONORARY.

- 1. How many pounds more will be the pressure of the air on the surface of an animal having an area of 10 square feet, when the mercury in the barometer is 28 inches, than when it is 25 inches?
- 2. Two volumes of air, saturated with moisture, each weighing 160 pounds, and one having a temperature of 32° and the other 86°, mingled together; what was the amount of moisture expelled?
- 3. What degree of heat will the Centigrade thermometer indicate that corresponds to 50° Fahrenheit's thermometer?

Rochester Free Academy,

EXAMINATION PAPERS.

CÆSAR

April, 1879.

CÆSAR.

- 1. His nunciis litterisque commõtus, Cæsar duas legiõnes in citeriõre Gallia novas conscripsit, et, inīta aestāte, in interiõrem Galliam qui deducĕret, Quintum Pedium legātum misit. Ipse, quum primum pabůli copia esse incipĕret, ad exercitum venit: dat negotium Senonībus reliquisque Gallis, qui finitīmi Belgis erant, uti ea, quae apud eos geraħtur, cognoscant seque de his rebus certiōrem faciant. Hi constanter omnes nunciavērunt, manus cogi, exercitum in unum locum condūci. Tum vero dubitandum non existimāvit, quin ad eos proficiscerētur. Re frumentaria comparāta, castra movet, diebusque circĭter quindēcim ad fines Belgārum pervēnit.
- 2. Cæsar, obsidībus acceptis, primis civitātis atque ipsīus Galbae regis duōbus filiis, armisque omnībus ex oppīdo tradītis, in deditionem Suessiones accēpit, exercitumque in Bellovācos ducit. Qui quum se suŭque omnia in oppīdum Bratuspantium contulissent, atque ab eo oppīdo Cæsar cum exercītu circīter milia passuum quinque abesset, omnes majores natu, ex oppīdo egressi, manus ad Cæsārem tendēre et voce significāre coepērunt, sese in ejus fidem ac potestātem venīre, neque contra popūlum Romānum armis contendēre-Item, quum ad oppīdum accessisset castrāque ibi ponēret, puēri mulieresque ex muro, passis manībus suo more, pacem ab Romānis petiērunt.
- 3. Cæsări omnia uno tempôre erant agenda: vexillum proponendum, quod erat insigne, quum ad arma concurri oportēret; signum tuba dandum; ab opere revocandi milītes; qui paullo longius aggeris petendi caussa processerant, arcessendi; acies instruenda; milītes cohortandi; signum dandum: quarum rerum magnam partem tempôris brevītas

et successus hostium impediēbat. His difficultatībus duae res erant subsidio, scientia atque usus milītum; quod superiorībus proeliis exercitāti, quid fiéri oportēret, nou minus commode ipsi sibi praescribēre, quam ab aliis docēri potērant; et quod ab opēre singulisque legionībus singulos legātos Cæsar discedēre, nisi munītis castris, vetuērat.

- 4. Ac primo adventu exercitus nostri crebras ex oppido excursiones faciobant, parvulisque proeliis cum nostris contendebant: postea, vallo pedum XII in circuitu quindécim nillium crebrisque castellis circummuniti, oppido sese continebant. Ubi vineis actis, aggère exstructo turrim procul constitui viderunt, primum irridere ex muro atque increpitare vocibus, quo tanta machinatio ab tanta spatio institueretur! quibusnam manibus aut quibus viribus, praesertim homines tantulae statūrae, (nam plerumque omnibus Gallis prae magnitudine corporum suorum brevitas nostra contemptui est.) tanti oneris turrim in muto sese collocare confiderent!
- 5. Illi, ante inito, ut intellectum est, consilio, quod, deditione facta, nostros praesidia deducturos, aut denique indiligentius servatoros credidérant, partim cum his, quae retinuérant et celavérant, armis, partim scutis ex cortice factis aut viminībus intextis, quae subīto, ut tempôris exiguitas postulābat, pellībus induxérant, teftia vigilia, qua minīme arduus ad nostras munitiones ascensus videbātur, omnībus copiis repentino ex oppido eruptionem fecērunt. Celeriter, ut ante Cæsar imperārat, ignībus significatione facta, ex proximis castellis eo concursum est, pugnatumque ab hostibus ita acriter est, ut a viris fortībus in extrēma spe salūtis, inīquo loco, contra cos, qui ex vallo turribusque tela jacērent, pugnāri debuit, quum in una virtūte omnīs spes salūtis consistēret.

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EXAMINATION PAPERS.

LATIN GRAMMAR.

April, 1879.

Latin Grammar.

- 1. Give a synopsis of laudo in the indicative mode of both voices.
- 2. Give a synopsis of moneo in the passive voice, subjunctive mode.
 - 3. Give the active voice, imperative mode, of scribo.
 - 4. Give the passive voice, infinitive mode, of punio.
 - 5. Give the principal parts of possum; of eo; of fero.
- 6. Give the active voice, indicative mode, present tense, of volo.
- 7. Give the active voice, subjunctive mode, imperfect tense, of nolo.
- 8. Give the active voice, subjunctive mode, present tense of male.
 - 9. Define a deponent verb; an impersonal verb.
 - 10. How are the periphrastic conjugations formed?
- 11. Give a synopsis of pugno in the first periphrastic conjugation, indicative mode.
- 12. Give a synopsis of rego in the second periphrastic conjugation, subjunctive mode.
 - 13. Translate into English:
- 1. Discipulus a magistris laudatus est. 2. Flebat puer quod librum amisisset. 3. Milites acriter pugnando urbem liberaverunt. 4. Tacete, pueri. 5. Ille urbem muris cinxit.
- 6. Cæsar castra muniri jubet. 7. Mi fili, verere parentes.
- 8. Fossa a viro foditur. 9. Noli scribere. 10. Mihi ire licuit.
 - 14. Translate into Latin :
 - 1. The war had been finished by the commander. 2. One

says one thing, another another. 3. The king has two sons.

4. Read the book, boys. 5. Cæsar came to the city. 6.

Romulus has killed his brother. 7. I am able to read, but not to write. 8. We wished to know. 9. Cicero was consul.

10. Powerful kings have large fields.

15. Translate the following:

Societatam junxerant leo, juvenca, capra, ovis. Praeda autem quam ceperant, in quattuor partes divisa, leo "Prima" inquit "mea ist; debetur enim haec praestantiæ meæ. Tollam quoque secundam, quam meretur robur meum. Tertiam vindicat mihi egregius labor meus. Quartam qui sibi arrogare voluerit, is sciat se habiturum me sibi inimicum." Quid facerent imbelles bestiæ? aut quae sibi leonem infestum habere vellet?

- 16. In the previous fable, give the construction of each word in the sentence beginning Quartam qui.
 - 17. Translate the following:

Duces igitur elegerunt; qui, quo facilius cognosci possent, cornua induti sunt.

- 18. Why is possent in the subjunctive?
- Translate the following:

Tum forte auceps, arundinibus collectis, proficiscitur ad columbam capiendam.

- 20. What equivalent construction could be used in place of ad columbam capiendam?
 - 21. Translate the following:

Numitori, qui natu major erat, regnum reliquit: sed Amulius, pulso fratre, regnavit, et, ut eum subole privaret, Rheam Silviam, ejus filiam, Vestæ sacerdotem fecit.

- 22. Parse qui.
- 23. Parse fratre.
- 24. Translate the following:

Itaque trigemini arma capiunt, et in medium inter duas acies procedunt.

- 25. Parse capiunt.
- 26. Parse et in the same sentence.

27. Translate the following:

Jam aliquantum spatii ex eo loco ubi pugnatum est aufugerat, cum respiciens videt unum Curiatium haud procul ab se abesse.

- 28. Parse ex.
- 29. Dispose of spatii.
- 30. Dispose of Curiatium.
- 31. Translate the following:

Jam singuli supererant, sed nec spe nec viribus pares. Alterius erat intactum ferro corpus, et geminata victoria ferox animus. Alter fessum vulnere fessum cursu trahebat corpus.

- 32. Construe the sentence: Alter fessum vulnere fessum cursu trahebat corpus.
 - 33. Translate the following:

Cui obvia fuit soror, quae desponsa fuerat uni ex Curiatiis, visoque super humeros fratris paludamento sponsi, quod ipsa confecerat, flere et crines solvere cœpit.

- 34. Parse obvia.
- 35. Dispose of paludamento.
- Dispose of uni.
- 37. Translate the following:

Interea pater Horatii senex proclamabat filiam suam jure cæsam fuisse; et juvenem amplexus spoliaque Curiatiorum ostentans, orabat populum, ne se orbum liberis faceret.

- 38. What is the object of proclamabat?
- 39. Dispose of liberis.
- 40. With what does amplerus agree?

Rochester Free Academy,

EXAMINATION PAPERS.

VIRGIL

April, 1879.

VIRGIL.

- 1. Give a brief epitome of the more important events narrated in the 3d and 4th books of the Æneid.
- 2. Explain as clearly as you can, the distinctive difference in the mechanical structure of verse, as made by the ancient Greeks and Romans, when compared with that made in modern times.
- 3. Fix the time, as nearly as you can historically, when the modern method of verse building may be said to have fairly begun.
- 4. What can you say in this connection in relation to Christianity and medieval hymnology?
- 5. What is the nearest approach to rhyme in ancient poetry? Give Milton's opinion of rhyme.
- 6. If ancient and modern poetry differ so materially in structure, what particular benefit can there be in our learning to scan, or in trying to read Latin verse according to the ancient method?
 - 7. Translate:

Rursus in arma feror, mortemque miserrimus opto, Nam quod consilium aut quae jam fortuna dabatur? Mene efferre pedem, genitor, te posse relicto Sperasti, tantumque nefas patrio excidit ore? Si nihil'ex tanta Superis placet urbe relinqui, Et sedet hoc animo, perituraeque addere Trojae Teque tuosque juvat, patet isti janua leto.

Nox erat, et terris animalia somnus habebat:
 Effigies sacrae divum Phrygiique Penates,
 Quos mecum a Troja mediisque ex ignibus urbis
 Extuleram, visi ante oculos adstare jacentis
 In somnis, multo manifesti lumine, qua se

Plena per insertas fundebat luna fenestras; Tum sic affari et curas his demere dictis:

- 9. Postquam altos ventum in montes atque invia lustraEcce ferae, saxi dejectæ vertice, caprae
 Decurrere jugis: alia de parte patentes
 Trausmittunt cursu campos atque agmina cervi
 Pulverulenta fuga glomerant montesque relinquunt.
 At puer Ascanius mediis in vallibus acri
 Gaudet equo, jamque hos cursu, jam praeterit illos,
 Spumæntemque dari pecora inter inertia votis
 Optat aprum, ant fulvum descendere monte leonem.
- 10. Interea medium Aeneas jam classe tenebat Certus iter, fluctusque atros aquilone secabat. Moenia respiciens, quae jam infelicis Elissae Collucent flammis. Quae tantum accenderit ignem. Caussa latet; duri magno sed amore dolores Polluto, notumque, furens quid femina possit. Triste per augurium Tenerorum pectora ducunt.
- 11. Give the parts of effere, in 7; give the construction of te, in the same verse; govern the word with which superis agrees, and tell where periturae is made.
- 12. Give the parts of extuleram, in 8, and the construction of visi, jacentis and manifesti.
- 13. Give the connection of postquam and the construction of ventum, in 9.
- 14. Give the mood of accenderit and the rule for the same, in 10. Analyze interea, and give the antecedent and geuder, number, case and government of its pronominal element.
- 15. What is the meaning of pulverulent? What, then, do you infer to be the force of the English termination lent (from the Latin lentus) in English words, e.g., virulent, benevolent, malevolent, &c.?

Give the Latin equivalents in common use in our language for the cumbrons English compounds, sieze-hold-to-getherness, sieze-hold-to-gether-ative-ness, un-sieze-hold-to-getherable-ness, and act-of-building-to-gether-again. Rochester Free Academy,

EXAMINATION PAPERS.

GREEK LESSONS.

April, 1879.

GREEK LESSONS.

TRANSLATE:

- Καὶ οὐτοι μὲν ἔμενον, οἱ δ' ἄλλοι ἐπορεύοντο. Νόμος γὰρ ἦν οὐτός σφισιν. Ταύτην δη τὴν πάροδον Κῦρός τε καὶ ἡ στρατιὰ παρῆλθε, καὶ ἐγένοντο εἴσω τῆς τάφρου. Τούτω ἀπεθανέτην. Τοῦτο ἔστω. Καὶ κελεύει αὐτοὺς λέγει» ταῦτα τοῖς στρατιώταις; καὶ ἀναπείθειν ἔπεσθαι.
- 2. Τις ούτω μαίνεται, δστις οὺ βούλεται σοι φίλος είναι; Πριν δήλον είναι, ὅ τι οἱ ἄλλοι ελληνες ἀποκρινούνται Κύρφ. Μένων δὲ, πριν δήλον είναι, τι ποιήσουσιν οἱ ἄλλοι στρατιώται, πότερον ἔψωνται Κύρφ ἢ οῦ, συνέλεξε τὸ αὐτοῦ στράτευμα χωρίς τῶν ἄλλων, καὶ ἔλεξε τάδε. Εἰπὲ, τίνα γνώμην ἔγεις περί τῆς πορείας.
- 3. Οι δε στρατιώται ώς είδον τον Ξενοφώντα προσπίπτουσιν αὐτῷ πολλοί, καὶ λέγουσι · · · · Νῦν σοὶ ἔξεστιν, ঊ Ξενοφών, ἀνδρὶ γενέσθαι. · · · · · · · · · · · · · · · · · ἐχεις πόλιν, ἔχεις τριήρεις, ἔχεις χρήματα, ἔχεις ἀνδρας τυσούτους. · · · Νῦν ἀν, εὶ βούλοιο, σύ τε ἡμῶς δνήσως, καὶ ἡμεῖς σὲ μέγαν ποιήσαιμεν."
- 4. When they have arrived there, they will deliberate in view of this. Tamos the admiral excluded them from Ephesus. I would most gladly close the gates. Hear that tumult. He called the Scythian archers. He called the generals into his tent as advisers. We will hear you.

- 5. And this country, beginning at the mouth of the Euphrates, extends as far as Babylon, upon the right as you sail into the river. During this night, then, they lodged there upon the beach by the harbor of Calpe. This harbor is in Asiatic Thrace.
- 6. The width of the river Cydnus was two hundred feet. Through the midst of the plain flows a river four hundred feet in width. The Cretans, deserting the city, fled with all speed to the mountains. And they were about fifty years old, when they died.
- 7. State where each of the following words is made, indicate the analysis of each by separating the elements of each by a hyphen, and name the elements of the first: 'Επορεύοντο, ἀποχρινοῦνται, συνέλεξας.
- 8. Write the parts of the following verbs: ἀττέλλω, λαμβάνω, παρέργομαι.
 - 9. Write the dative plural of "Ελλην, πῶς, ἐππεύς.
- 10. Derive and give the etymon of geometry, perigee, tachypod, antipodes, and make some English words in common use—giving their true signification—from Θεός, φυβέω, δδωρ, λόγος.

Rochester Free Academy,

EXAMINATION PAPERS.

ANABASIS.

April, 1879.

ANABASIS.

1. Give a brief epitome of the most important events narrated in the first and second books of the Anabasis, as you remember them.

TRANSLATE:

- 2. Πρὸς ταῦτα μεταστάντες οἱ «Ελληνες ἐβουλεύοντο, καὶ ἀπεκρίναντο (Κλέαρχος δ' ἔλεγεν). " 'Ημεῖς οὕτε συνήλθομεν ὡς βασιλεῖ πολεμήσοντες, οὕτ ἐπορευόμεθα ἐπὶ βασιλέα. ἀλλὰ πολλὰς προφάσεις Κῦρος εὕρισκεν, ὡς καὶ σὺ εἰ οἰσθα, ἵνα ὁμᾶς τε ἀπαρασκευάστους λάβοι, καὶ ἡμᾶς ἐνθάδε ἀναγάγοι. 'Επεὶ μέντοι ἢδη αὐτὸν ἐωρῶμεν ἐν δεινῷ ὅντα, ἢσχύνθημεν καὶ θεοὺς καὶ ἀνθρώπους προδοῦναι αὐτὸν, ἐν τῷ πρόσθεν χρόνψ παρέχοντες ἡμᾶς αὐτοὺς εὐ ποιεῖν. 'Επεὶ δὲ Κῦρος τέθνηκεν, οὕτε βασιλεῖ ἀντιποιούμεθα τῆς ἀρχῆς, οὕτ' ἔστιν ότου εὐκαα βουλοίμεθ' ἄν τὴν βασιλέως χώραν κακῶς ποιεῖν οὐδ' αὐτὸν ἀποκτεῖναι ἄν ἐθέλοιμεν, πορευοίμεθα δ' ἀν οἴκαδε, εἴ τις ἡμᾶς μὴ λυποίη · ἀδικοῦντα μέντοι πειρασόμεθα σὺν τοῖς θεοῖς ἀμύνασθαι · ἐαν μέντοι τις ἡμᾶς καὶ εὐ ποιῶν ὑπάρχῃ, καὶ τούτου εῖς γε δύναμν οὐχ ἡττησόμεθα εὐ ποιοῦντες." 'Ο μὲν οὕτως εἶπεν.
- 3. 'Εκ τούτου Εενοφώντι εδόκει διωκτέον είναι καὶ εδίωκον τών τε όπλιτών καὶ τῶν πελταστών, οὶ ετυχον σὺν αὐτῷ ὁπισθοφυλακοῦντες διώκοντες δε οὐδένα κατελάμβανον τῶν πολεμίων. Οὕτε γὰρ [ππεῖς Ίσαν τοῖς "Ελλησιν, οὕτε οἱ πεζοὶ τοὺς πεζοὺς ἐκ πολλοῦ φεύγοντας ἐδύναντο καταλαμ-

βάνειν εν δλίγφ χωρίφ πολύ γόρ ούχ οξόν τε ήν ἀπό τοῦ άλλου στρατεύματος διώχειν. Οξ δε βάμβαροι ξππεῖς καὶ φεύγοντες ἄμα ἐτίτρωσκον, εἰς τοῦπισθεν τοξεύοντες ἀπό τῶν ἔππων ὁπόσον δὲ προδιώξειαν οξ "Ελληνες, τοσοῦτον πάλιν ἐπαναχωρεῖν μαχομένους ἔδει. "Ωστε τῆς ἡμέρας δλης διήλθον οὐ πλέον πέντε καὶ εἴκοσι σταδίων, ἀλλά δείλης ἀφίκοντο εἰς τὰς κώμας. "Ενθα δὴ πάλιν ἀθυμία ἡν. Καὶ Χειρίσοφος καὶ οξ πρεσβύτατοι τῶν στρατηγῶν Ξενοφῶντα ἢτιῶντο, ὅτι ἐδίωκεν ἀπὸ τῆς φάλαγγος, καὶ αὐτός τε ἐκινδύνενε, καὶ τοὺς πολεμίους οὐδὲν μῦλλον ἐδύνατο βλάπτειν.

- 4. What were you selling? I was selling this silver cup. I shall sell it for a large price. The boy laughs because you are selling your hat and your cloak. For how much will you sell the colt? For much money. I was selling my horse when you came in. Where is the cat? She is lying in the corner. The cat was just now lying on the table. The boy caught the cat. For this reason the cat bit the boy. The good always love one another. Nobody loves wisdom and virtue except the good. Wisdom is a fountain of life. Virtue alone is wis-In the heart of the flatterer there is nothing but poison. The unjust do not love one another. Whence flows the great river? It flows out of this hill through the country into the sea. The hill is distant many stadia from the sea.
- 5. (a.) Give the parts of μεταστάντες, εβουλεύοντο, and ἀπεχρίναντο (in 2) and state where each is made.
- (b.) Where is πολεμήσουτες made, with what does it agree, and what is the special force of the participle in this tense when so used, and what word directs attention to to its subjective character?
- (c.) What is διωχτέον (3)? What is its equivalent in Greek? What in Latin?

- (d.) Analyze and explain δπισθοφυλαχοῦντες. To what word is it complementary, and by what mood should it be translated when thus used?
- (a.) Explain the kinship of βούλ(ομαε,) γεγνώσκω, and ὁ (ή) τό, with volo, know and the, respectively.
- (b.) Derive apothecary, synchronous, heterodox and symbol, giving the meaning of each.
- (c.) Derive English words from δράω, μίγνυμι, μηχανάομαι and πράττω.

ROCHESTER FREE ACADEMY.

Examination Papers.

ALGEBRA.

DECEMBER, 1878.

ALGEBRA.

- 1. In how many and what ways may an algebraic quantity be expressed?
- 2. In the expression $(x+y)^{\frac{3}{4}}$, what does the exponent signify?
 - 3. What is the difference between terms and factors?
 - 4. Define a Residual.
- 5. Give rules for the use of the parenthesis preceded by the minus sign.
 - 6. What is the degree of a term?
 - 7. Write a homogeneous trinomial.
- 8. Give the algebraic expression for the square root of x, diminished by the square root of y, is equal to n times the sum of the lourth root of a and the fourth root of b.
- 9. Find the numerical value of $\frac{2a+3c}{6d+3e} + \frac{4bc}{\sqrt{2ac+c^2}}$, when a=6, b=5, c=4, d=1, and e=2.
- 10. Remove the signs of aggregation from and reduce a-[a+b-(a+b+c-(-a+b+c+d))+c].
- 11. Add $\sqrt{a} 3xy \sqrt[3]{m} n + 6xy + 5\sqrt{a} + 7n 7xy + 9\sqrt{a} 7\sqrt[3]{m} + 16n 5\sqrt{a}$.
 - 12. From $4a^{m}+2x^{p}-x^{q}$ take $a^{m}-b^{n}+3x^{p}+2a^{m}-3b^{n}-x^{q}$.
 - 13. Multiply $x^m |-y^m|$ by x |-y|.

- 14. Divide x' y' -|-6x' y' -x' y' by xy.
- 15. Factor $cx = -3cxz |-cx^2|$.
- 16. Factor $(a-|-b)^2-(c-|-d)^2$.
- 17. Of what factors is the greatest common divisor composed?
- 18. Find the least common multiple of $x^3-x^2y-xy^2-y^3$, $x^3-x^3y-x^2-y^2-y^3$, and x^4-y^4 .
 - 19. Give the reciprocal of x^{-m}
 - 20. Reduce $\frac{x^4 |-2x^2| |-9|}{x^4 |-4x^3| |-4x^2| |-9|}$ to its lowest terms.
 - 21. Reduce $\frac{a^2 b^m cd}{a^{-1} b^n c^n d^{-2}}$ to the form of an entire quantity.
 - 22. Add $\frac{x}{x+y}$ and $\frac{y}{x-y}$.
 - 23. From $\frac{ax}{a^2-x^2}$ take $\frac{a-x}{a+x}$.
 - 24. Divide $\frac{2y^2}{x^3+y^3}$ by $\frac{y}{y+x}$.
 - 25. Simplify $\frac{2}{x + \frac{2}{2 + \frac{x+1}{3-x}}}$

ROCHESTER FREE ACADEMY.

Examination Papers.

ARITHMETIC.

DECEMBER, 1878.

ARITHMETIC.

- 1. Name and define the fundamental operations of Arithmetic.
- 2. Give the principles of the Roman method of notation.

Write the following numbers by the method: 461, 532, 1878.

3. Give the principles of the Arabic method of notation.

Write the following numbers by the Arabic method: six billion five thousand and three million seven hundred and nine, ninety-nine quintillion seven hundred forty-one trillion fifty-four billion one hundred eleven million one hundred one.

- 4. What is a fractional unit? a fraction? a simple fraction? a compound fraction? a complex fraction?
- 5. A owned $\frac{7}{8}$ of the stock of a company, and sold $\frac{5}{8}$ of his stock to B, who sold $\frac{5}{8}$ of his stock to C, who sold $\frac{1}{2}$ of his stock to D; what share of the stock did each have?
- A merchant sold \(\frac{1}{2}\) of \(\frac{3}{6}\) of his stock in a month;
 what part of \(\frac{3}{6}\) of his stock remained.
- 7. What is a decimal fraction? Give the rule for decimal notation, and for decimal numeration.

Express decimally the following: ninety-nine thousand nine ten-billionths, one trillion one billion one million one thousand one ten-trillionths.

8. What is the value of $\frac{229}{1728} \times 1.44$?

What is the value of $57.643987 \div 63975$ to four decimal places?

9. A grocer bought 231 gallons of milk by beer measure, at 4 cents a quart, and sold it by wine measure at 5 cents a quart; required the gain?

Reduce 10 of a bushel to the fraction of a pint.

Reduce & of a ton to integers of lower denomination.

 Name and define the elements used in operations in percentage.

An apothecary finds that in 993 gallons of alcohol the water is 83 % of the spirits; how many gallons are there of each?

What is the difference between a discount of 40 % and 10 % taken 4 times?

- 11. If a druggist gives me a pound Troy of washing soda instead of a pound Avoirdupois, what is my loss per cent., and what is his gain per cent.?
- 12. I sold a consignment of goods through a factor who charged me $1\frac{1}{2}$ %; I was allowed $2\frac{1}{4}$ commission and $3\frac{1}{4}$ % for insuring payments, and I cleared \$68; what was my commission, and the sum remitted to the consignors?

13. Name the elements in the operations of interest.

Find the amount of 10 cents for 10 years, 10 months, 10 days, at 10 %.

Find the interest on \$45.50 for 6 years, 3 months, 9 days, at 4 %.

14. A note for \$287 was dated January 1, 1870. Indorsed May 1, 1870, \$20; February 10, 1871, \$15; September 30, 1871, \$30. What was the balance due December 31, 1871?

A note for \$459.61, dated September 9, 1869, had the following indorsements: May 15, 1870, \$78.28; August 6, 1871, \$243.27; February 9, 1873, \$35.50. What was due September 4, 1873?

15. In what time will \$72.50 at 6 %, give \$14.08 $\frac{1}{2}$ interest?

At what rate will \$13.50 in 10 years, 8 months, 29 days, give \$26.56 amount?

What principal will, in 5 years, 8 mouths, 11 days, at 6 %, give \$137.54% interest?

ROCHESTER FREE ACADEMY.

Examination Papers.

ASTRONOMY

DECEMBER, 1878.

ASTRONOMY.

- 1. Why cannot we see the stars in the day time?
- 2. From the use of which instrument, the telescope or the spectroscope, can we gain the greater information in regard to the stars? Why?
 - 3. Why do the sun and the stars shine?
- 4. What were the three fundamental facts of astronomy taught by Copernicus?
 - 5. State the law of gravitation, discovered by Newton.
- 6. To what are the different degrees of brightness in the stars due?
- 7. What does the telescope teach us in regard to the milky way?
- 8. In order that a constellation may be a zodiacal constellation, where must it be situated?
- 9. What is the difference between a star cluster and a nebula?
 - 10. Why cannot the sun present phases like the moon?
- 11. What two facts have been discovered by observing the spots on the sun?
- 12. How does the brightness of the sun compare with that of a calcium light?
 - 13. What constitutes the solar system ?
- 14. Name the planets, in the order of their distances from the sun.
- 15. State the interesting facts connected with the discovery of Neptune?

- 16-17. Name those planets which have moons, and state the number which each has.
- 18. Why does the circular shadow of the earth, as seen at the time of a lunar eclipse, prove that the earth is spherical?
- 19. What is Foucault's pendulum experiment intended to demonstrate? Describe it as performed by your instructor.
- 20. Why are the earth, and the heavenly bodies whose forms we know, spherical?
- 21. If the earth's axis were inclined as much as that of the planet Mars (28° 51'), where would the tropics and the polar circles be situated?
- 22. If an observer could be on the sun at the time of the summer solstice, beyond which pole of the earth could he see, and to what extent?
- 23. Why are the days and nights at the equator always each twelve hours in length?
- 24. How does the flattening of Jupiter's polar regions confirm us in our belief that the earth's polar flattening is due to its axial rotation?
- 25. How do you account for the fact that the moon always keeps the same surface turned towards the earth, while constantly rotating upon its axis?
- 26. Why cannot human beings, constituted as we are, live upon the moon?
- 27. What change in the position of the moon's orbit would occasion a solar eclipse at the time of each new moon?
 - 28. Why cannot there be an annular eclipse of the moon?
- 29. In what part of the heavens would you look for those planets which present phases like the moon's? Name the planets.
- 30. What good reason have we for believing that the white spot, seen at the south polar regions of Mars, is really an accumulation of snow and ice?
- 31. Of what are the rings of saturn believed to be composed?

- 32-33. Write the series of numbers comprising Bode's law, and state what each number represents.
- 34. The above law led to the discovery of what heavenly bodies? State why it did so.
 - 35. Name and describe the three parts of a comet.
- 36. Why may the November star showers be expected at intervals of about thirty-three years?
- 37. How do you account for the fact that the earth makes 366 complete revolutions on its axis, and yet there are but 365 complete solar days?
- 38. What is the latitude of a person, to whom the altitude of the pole star is 42° 33′ 18''?
- 39. If the earth is 92,000,000 miles from the sun, how much farther is Jupiter from the earth at superior conjunction than at opposition?
 - 40. Why is the tropical shorter than the sidereal year?

HONORARY.

- 1. Describe and illustrate the method of determining the distances of the nearest fixed stars.
- 2-3. A mariner at sea, on taking his observations at noon, finds that the altitude of the sun is 73°; he finds from his nautical almanae that it has at that time a south declination of 19°; and his chronometer, which keep's Washington time, indicates 1 o'clock P. M.; what are his latitude and longitude?
- 4. The diameter of the sun is 396 times that of the moon; if the former is situated 92,000,000 miles from the earth, how far away must the latter be, to appear of an equal size?

ROCHESTER FREE ACADEMY.

Examination Papers.

COMPOSITION

DECEMBER, 1878.

COMPOSITION.

2nd Year.

- 1. Define Style, Diction, Construction.
- 2. What constitutes purity of diction?
- 3. Name the principal elements of good construction.
- 4. By what marks may we determine whether a word is legitimate?
- 5. Give three rules having reference to strength of construction.
- 6. What can you say of the relative importance of Harmony in construction?
- 7. Under what two general heads is the subject of Harmony considered?
- S. What forms of words should be avoided when it is desired that the sound be smooth and flowing?
- 9. What arrangement of words and clauses into sentences accords with a dignified and elevated style of discourse?
- 10. Point out the faults or excellences illustrated by the following expressions, correcting those which are faulty.
 - (1.) I expect you had a hard time of it yesterday.
- (2.) He was born in the old New England town, whose colonial history is so tragically memorable, on the 4th of July, 1804.
- (3.) Tell him, if he is in the parlor, I do not wish to see him.
- (4.) Any one whom he considered in all things subject to his command.

- (5.) He remits his splendor, but retains his magnitude; and pleases more, though he dazzles less.
- (6.) When morning came, and breakfast was over, to their surprise, Mr. Dalton's carriage stood before the door-
 - (7.) The populosity of China is remarkable.
- (8.) After we came to anchor, I was put on shore, where I was welcomed by all my friends, who received me with the greatest kindness.
 - 11. Punctuate the following sentences:
- (1.) Books which are the repositories of knowledge are an indispensable part of the furniture of a house.
- (2.) A man who has never been at sea can never be thoroughly proficient in navigation.
- (3.) Spencer the author of the Fairy Queen lived in the time of Queen Elizabeth.
- 12. Give distinctive meaning of the synonymous words, abdicate, resign, and renounce, with sentences illustrating each.
- 13. What is a figure of speech? Into what classes are figures divided?
- 14. Name the figures illustrated by the following words or expressions.
 - (1.) 'Tis he.
 - (2.) Bejeweled.
 - (3.) The dewy morn.
 - (4.) In the chilly night.
 - (5.) In him who is, or him who finds, a friend.
 - (6.) While I—but I will say no more.
 - (7.) I saw with my own eyes.
 - (8.) The live day long.
- 15. Give some direction regarding the forms which should be observed in writing a letter.
- 16. Give some directions regarding the proper style and subject matter of a letter of friendship.
 - 17. Write a note of invitation.

- 18. Name three noted contemporaries of Shakespeare.
- 19. From what is the following paragraph an extract?
- "My hold of the Colonies is in the close affection which grows from common names, from kindred blood, from similar privileges, and equal protection. These are ties which, though light as air, are as strong as links of iron. Let the Colonies always keep the idea of their civil rights associated with your government; -they will cling and grapple to you; and no force under heaven will be of power to tear them from their allegiance. But let it be once understood, that your government may be one thing and their privileges another; that these two things may exist without any mutual relation: the cement is gone; the cohesion is loosened; and everything hastens to decay and dissolution. As long as you have the wisdom to keep the sovereign authority of this country as the sanctuary of liberty, the sacred temple consecrated to our common faith, wherever the chosen race and sons of England worship freedom, they will turn towards you."

Underscore those words in the paragraph which in reading you would give the chief emphasis, and indicate by inserting perpendicular lines, where you would make rhetorical pauses.

20. Write a composition on the weather.

Examination Papers.

GEOMETRY

CEOMETRY.

1. Define Geometry.

Name and define the geometrical magnitudes.

Name and define the various kinds of polygons of four sides.

2. What are equivalent magnitudes? Equal magnitudes?

Show the difference between them by diagrams.

What are mutually equiangular polygons? Similar polygons? Regular polygons?

3. In what cases are triangles equal? In what cases equivalent? In what cases similar?

In what cases are parallelograms equivalent?

- 4. Prove that the square described on the difference of two lines is equivalent to the sum of the two squares described on the two lines diminished by twice the rectangle measured by the lines.
- 5. Prove that the two diagonals of any parallelogram bisect each other; and the sum of their squares is equivalent to the sum of the squares of the four sides of the parallelogram.
 - 6. Define ratio, proportion.

When is a proportion taken inversely?

When taken by alternation?

When are two magnitudes reciprocally proportional?

- 7. Prove that similar polygons may be divided into the same number of triangles; and that to each triangle in one of the polygons, there will be a corresponding triangle in the other polygon, these triangles being similar and similarly situated.
- 8. Prove that if the vertical angle of a triangle be bisected, the bisecting line will cut the base into parts proportional to the adjacent sides of the triangle.
 - 9. What is a radius of a circle? A chord? A sector? What is a tangent to a circle? A secant?

Prove that any radius perpendicular to a chord, bisects the chord and also the arc of the chord.

10. Solve the following problems:

The longer of the two parallel sides of a trapezoid is 24, the shorter 16, and their distance asunder 10, what is the area of the trapezoid? and if the two inclined sides are produced until they meet, what will be the area of the triangle so formed?

The perpendicular distance between two parallels is 20 feet, and a line is drawn across them at an angle of 45°, what is its length between the parallels?

Examination Papers.

NATURAL PHILOSOPHY

NATURAL PHILOSOPHY.

- 1. How do we know that any thing exists?
- 2-3. Define the following essential properties of matter: impenetrability and inertia.
- 4. What physical reason have we for believing that atoms of matter are not in contact?
 - Define force.
 - 6. Define internal or molecular force.
- 7-9. Describe the three conditions in which all matter exists.
- 10. Why will a small needle, carefully laid upon the surface of water, float?
- 11. How is the weight of a body affected, when carried downward, into the earth?
- 12. In the French system of weights and measures, what is the unit of measure, and how is it determined?
 - 13. What is the specific weight of a body?
- 1i. Give the rule for finding the specific gravity of solids and liquids.
- 15. When will the center of gravity in a body coincide with its center of magnitude?
- 16. What is the relation of the point of support to the center of gravity, when a body is in a condition of stable equilibrium?
 - 17. What is a vertical line?
- 18. Why will a pendulum, whose length remains the same, vibrate less rapidly in the equatorial than in the polar regions of the earth?

- 19. How do the lengths of pendulums, vibrating in unequal times, compare?
- 20. What relation exists between the angles of incidence and reflection, in reflected motion?
 - 21. How does simple differ from compound motion?
- 22. State the relation which the weight, power and fulcrum sustain to one another in a lever of the third class.
- 23. In the wheel and axle, what is the relation of the weight to the power, when they are in equilibrium?
- 24. To what is the pressure of a column of liquid proportional?
- 25. When will a liquid be elevated, and when depressed, in a capillary tube?

PROBLEMS.

- 2£. Suppose two bodies, one weighing 15 decagrammes and the other 20 decagrammes, situated 70 centimeters apart, were free to move towards each other, under the influence of mutual attraction; what space would each pass over before they came in contact?
- 27. What would be the weight of a body, weighing 16 pounds on the earth's surface, at a distance of 8,000 miles from the center of the earth?
- 28. On the supposition that a cubic foot of water weighs 1,000 ounces, what will be the weight of one cubic foot of iron, whose specific gravity is 7.800?
- 29. Through what distance, in feet, will a body fall, during 10 seconds of time, when acted on by gravity alone?
- 30. A body is acted upon by two forces, one of which, acting alone, would move it northeasterly a distance of 1 mile in 1 minute of time, and the other easterly a distance of 2 miles in the same time. Draw the parallelogram of forces and the resultant. Use a scale of 1 inch to the mile.
- 31. In a certain lever the power is 800 pounds, and the weight 160 pounds; the power is 18 inches from the fulcrum; what is the length of the lever?

- 32. A power of 150 pounds acts on a wheel 12 feet in diameter; what weight, suspended from a rope winding round an axle 6 inches in diameter, will balance this power?
- 33. A vessel is filled to a depth of 5 feet, with water; what pressure will its base, whose area is 8 square feet, sustain?

HONORARY.

- 1. A piece of cork weighed in the air 24 grammes, and a piece of brass 280 grammes; the brass weighed in water 244 grammes, and the brass and cork, when tied together, weighed in water 168 grammes; what was the specific gravity of the cork?
- 2. Wishing to ascertain the number of cubic inches in an irregular fragment of stone, its weight in air was found to be 48 ounces, and in water 28 ounces; what was its volume?
- 3. If a 10 pound ball of lead is thrown downwards with a velocity of 15 feet per second, how much farther will it descend during 3 seconds of time than during the 3d second of its fall?
- 4. What must be the horse power of a steam engine capable of lifting from the bottom of a mine, 540 feet deep, 15 tons of coal, in 10 minutes of time?
- 5. In a hydrostatic press, the area of the piston in the force pump is 1 square inch, and the area of the base of the piston in the large cylinder is 54 square inches; what will be the pressure exerted, supposing a power of 753 pounds is applied to the piston of the force pump?

Examination Papers.

HISTORY

HISTORY.

- 1. What date marks the limit of ancient history?
- 2. What nations belong to the Aryan race?
- 3. What were the characteristics of the grand age of Egyptian history?
 - 4. Describe the institution of caste and its effects.
- 5. How was the process of embalming connected with the religious ideas of the Egyptians?
 - 6. How far back does the history of Chaldaea extend?
- 7. What was the cause of the decay of the Assyrian empire?
 - 8. What form did the Assyrian civilization take?
 - 9. When was Babylon overthrown?
 - Name the periods of Jewish history.
- 11. What was the nature of the Hebrew government during the first period?
 - 12. How did the Jews contribute to civilization?
 - 13. Where was Phoenicia?
- 14. What was the extent of the settlements of the Phoenicians?
 - 15. What is the influence of colonies?
 - 16. Where was the original home of the Hindoos?
 - 16. What was the central point of the Hindoo theology?
 - 18. When did Buddhism arise?
- 19. What is known of the early life of the founder of the Persian empire?
 - 20. What was accomplished by Darius I.
 - 21. What was the nature of the Persian government?
 - 22. Who was Zoroaster?

- 23. Into what branches was the land trade of the Phoenicians divided?
- 24. What trade was possessed almost exclusively by Carthage?
- 25. Give a sketch of the physical geography of Greece, and state the connection between this and its historical developement.
 - 26. What states were contained in each division of Greece?
- 27. What were the noticeable features of the society of Greece in the time of Homer?
- 28. What other movements resulted from the Dorian conquest of the Pelopenessus?
- 29. Give the character of each of the two leading races of Greece.
 - 30. When does the authentic history of Greece begin?
- 31. What was the cause of the difference between the Spartans and the other Dorian tribes?
 - 32. What was the constitution of Sparta?
 - 33. What was the nature of the laws of Solon?
- 34. When did Clisthenes come into power, and what was the effect of the reform made by him?
 - 35. Describe the battle of Marathon.
 - 36. When did the invasion of Xerxes take place?
- 37. Name the chief battles of the invasion of Xerxes, and state their result.
- 38. What period was covered by the age of Pericles, and what was the nature of this period?
- 39. What were the causes of the success of Philip of Macedon?
 - 40. When did Alexander the Great succeed to the throne?
- 41. Name the chief battles fought, and the countries conquered by Alexander in his march to the east.
- 42. What division of the empire of Alexander was made at his death?
 - 43. What was the nature of the Grecian leagues?
 - 44. How did Greece assist in promoting political freedom?
- 45. What period is covered by the history of Rome as a republic?

- 16. When did Rome become a democracy?
- 47. By the reservation of what rights did Rome secure her sovereignty over the other states of Italy?
- 48. What were the terms of treaty which closed the first Punic war.
- 49. Name the most successful generals on both sides of the Punic wars.
- 50. When did the last Punic war occur, and what was its result?
- 51 What was accomplished by Tiberius and Caius Gracchus?
- 52. Who formed the first triumvirate, and what was their object?
 - 53. What was accomplished by Cæsar?
 - 54. How was he distinguished intellectually?
 - 55. When was he assassinated?
 - 56. Who were the chief members of the conspiracy?
- 57. What division of the Roman world was made by the members of the second triumvirate?
 - 58. What was the fate of Antony?
 - 59. When did Egypt become a Roman province?
 - 60. When did Rome become an empire?
- 61. What was the extent of the empire in the time of Augustus?
- 62. What three civilizations prevailed within the Roman dominion?
 - 63. What was the position of liverature at this time?
- 64 What change in the administration was made by Diocletian?
 - 65. When was the empire divided?
 - 66. Who was the first Christian emperor?
- 67. What were the causes of the persecutions of the Christians?
 - 68. What was the intellectual influence of Christianity?
- 69. When and from what cause did the first settlement of the Teutons in the Roman empire occur?
 - 70. When did the Roman empire end?

Examination Papers.

SCIENCE OF GOVERNMENT.

SCIENCE OF GOVERNMENT.

- 1. When and where did the first legislative assembly in America meet?
- 2. In what respects were the Colonial governments similar?
- 3. What led to the Revolution? What state took the lead in opposition to Great Britain?
- 4. When and where did the second Continental Congress meet? How long did it remain in session?
- 5. When were the Articles of Confederation adopted by Congress? When did they become binding on the states?
- 6. Of how many houses did Congress consist? How were the members chosen?
- 7. How was the voting in Congress done? For what length of time were the delegates chosen?
- 8. When and where did the convention that framed the Constitution meet? Who was its President?
- 9. How many states were required to ratify the Constitution before it could go into operation? When and where did the first Congress under it meet?
- 10. Who composed Washington's cabinet? How many articles did the Constitution contain when it was adopted?
- 11. By whom was the Constitution ordained and established? Where does it recognize the right of secession?
- 12 Into what departments are the powers of government divided? What is the office of each?
- 13. How is the House of Representatives composed? What are the necessary qualifications of a Representative?

- 14. How is the Senate composed, and what are the necessary qualifications of a senator?
- 15. How shall vacancies in the House of Representatives be filled? In the Senate?
- 16. What vote is necessary to convict in case of impeachment, and how far may the punishment extend?
- 17. When shall the yeas and nays be entered on the journal of either house? What is the restriction in regard to adjournment?
- 18. Where shall revenue bills originate? What immunities do members of Congress enjoy?
- 19. What is the first method by which a bill may become a law? The second method?
- 20. How often shall Congress meet? To what offices are members ineligible?
 - 21. What are imposts? Excises?
- 22. What are the necessary qualifications of the President, and how may he be removed from office?
- 23. How may foreigners become citizens of the United States? What is an ex post facto law?
- 24. What is a letter of marque and reprisal? A writ of habeas corpus?
- 25. What military power has the President? In what case has he not the power of reprieve or pardon?
- 26. How shall the Constitution be amended, and what amendment shall not be passed?
- 27. What power of adjourning Congress does the President possess? Where is the judicial power vested?
- 28. How is the President elected? Where is the sole power of impeachment vested?
- 29. What is original jurisdiction? Appellate jurisdiction?
- 30. What is treason against the United States, and what testimony is necessary to convict one of treason?

- 31. For what time may a patent-right be granted and renewed? By what vote shall a treaty be ratified to make it binding?
 - 32. What is slander? When does it become a libel?
- 33. What qualifications shall the President possess? What are the duties of a grand jury?
- 34. What is an indirect tax? How often may a person be put in jeopardy of life and limb for the same offence?
- 35. What is piracy? What are the qualifications of an elector?
- 36. Define high seas. How many amendments have been added to the Constitution?
- 37-48. Describe the State Department; the War Department; the Navy Department; the Treasury Department; the Post Office Department; the Interior Department.
- 49-50. In case of the death or removal of the President, the Vice-President, and the Speaker pro tem. of the Senate, who shall act as President? What, in your opinion, must be his qualifications?

HONORARY

- 1. What rights shall a criminal possess?
- 2. Describe the method of electing a U. S. Senator.
- 3. How is an impeachment preferred? How is the trial conducted?

Examination Papers.

Book Keeping and Commercial Law.

Book Keeping and Commercial Law.

- 1. Give the rules for opening books in Single Entry.
- 2. The rules for recording transactions.
- 3. The rules for closing the Ledger.
- 4. Give the rules for opening books in Double Entry.
- The rules for journalizing.
- 6. The special rules for notes and mortgages.
- 7. The rules for closing the Ledger.
- 8. What is a contract? Who are incompetent to make a contract? What contracts must be written? What is a corporation? What are the limits of a contract made by a corporation? What is an insufficient consideration?
- 9. What is negotiable paper? Who are the *original* and who are the *subsequent* parties to negotiable paper? What is a promissory note? A draft? A mortgage? What is an indorsement in full? How may a payee so indorse a note or a draft as not to be held in payment?
- 10. How may a check, drawn to order, serve as a receipt? What is an acceptance, and how is it made? What is a protest, and when must it be served? In what particular does a letter of credit differ from a bill of exchange? Which is the safer, to send money or a draft by mail, and why?

Write the following promissory note: Date, Rochester, N. Y., Dec. 19, 1878; amt., \$500; time, thirty days; payee, Henry Wray, Jr.; maker, James M. Cook; indorser, J. L. Townsend; place of payment, Powers' Bank.

Write the following draft: Date, Buffalo, N. Y., Dec. 19, 1878; amt., \$1,000; payee, N. W. Benedict; time, at sight; drawer, J. C. Lovell; drawee, Traders' National Bank.

Examination Papers.

GERMAN GRAMMAR.--A.

GERMAN GRAMMAR---A.

I.

In what gender are diminutives?

II.

What substantives are masculine by signification?

III.

What substantives are feminine by termination?

IV.

How are feminine appellations formed?

V.

Decline the definite article.

VI.

Decline the indefinite article.

VII.

Explain the use of the two modes of address in German.

VIII.

Conjugate Baben and Sein in the present tense.

IX.

Translate: We do not expect you without money.

Translate :---

X

Die allmächtige Sand.

Nühliches, Wohlthätiges und Unentbehrliches, was zur Naherung, zur Befleidung und zum Obdach, überhaupt zur Erhaltung der lebenden Geschöpfe gehört, sinden wir in der Natur. Das Baller löscht ungern Durft; allerlei Früchte fättigen unsern Humger; wir finden Materialien zu unserer Bekleidung und zum Baut unserer Bohunngen. Eine allmächtige Hand theilt aus, was wir bedürsen.

Aber and Schönes, Großes und Herrliches hat Gott geschaffen, was wir mit staumendem Eutzücken betrachten, was unsere Bewunderung erregt und unsere Herzen unit Freuden erfüllt. Der Glanz des Sternenhimmels, die Morgens und Abendröthe, die verschiedenen Gestalten und Karben der Bolken, das schöne Gründer Biesen und Blütter an den Bäumen, die Müthen und Blumen geigen und eine Schönheit und Pracht, die und rührt und bewegt, und unsere Seele zu Gott in dankbarer Anbetung erhebt, daß er sein großes Schopfungswerf so herrlich und unnachahnlich gezichmückt hat.

Examination Papers.

German Grammar.--B.

GERMAN GRAMMAR---B.

- 1. Give the German construction of simple and principal sentences.
 - 2. With what are prepositions frequently contracted?
 - 3. Like what do German nouns form their accusative?
 - 4. Translate: Voltaire is a French poet.
- 5. Give the definition of Jahrhundert, Ausstellung, Attersthun, Wörterbuch und Berdienft.
 - 6. Decline Jesus Christus.
 - 7. What nouns are used only in the singular?
 - 8. How would you translate I am to, and To be right?
 - 9. What is a noun with double gender?
 - 10. Give the principal parts of haben and fein.
- 11. What particles should be prefixed to an adjective to give to it a negative meaning?
- 12. How many prepositions govern the genitive case, and how are they rendered in German?
 - 13. Translate: I do not praise; and, Do you praise?
- 14. Where is the past participle placed in compound tenses?
 - 15. Explain the distinction between miffin and follen.

Examination Papers.

GERMAN READER.

German Reader.

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The verbs criminen, crivählen and madicu require what preposition in German?

H.

What is the signification of dürfen, müffen, mögen and joffen?

III.

In what case are nouns put when denoting indefinite time?

1V.

Translate: A drop of blood and the field of battle, without using the preposition.

V.

Translate: Thou shalt honor thy father and thy mother.

VI.

Explain the four German cases.

VII.

How is the Genitive Absolute used in German?

1.

2.

3.

4.

VIII

When is the Dative Case governed by nouns?

IX.

To what does mogen correspond negatively?

X.

Translate:—

Erzb. (tritt gwifchen beibe.) — Ihr feid vereinigt, Fürften!

Gin nen verjüngter Phonix, aus der Afche: Uns lächelt eine fcone Bufunft an. ce Landes tiefe Bunden werden beilen. Die Dörfer, die verwüsteten, die Städte Aus ihrem Schutt fich prangenber erheben. Die Kelder decken fich mit neuem Grun-Doch, die das Opfer eures Zwifts gefallen, Die Todten stehen nicht mehr auf: die Ihränen. Die eurem Streit gefloffen, find und bleiben Beweint! Das tommende Befchlecht wird blüben; Doch bas vergangene war des Clende Raub. Der Entel Glud erwedt nicht mehr bie Bater. Das find die Früchte eures Bruderzwifts! Laft's ench zur Lehre dienen! Fürchtet die Gottheit Des Schwerts, eh' ihr's der Scheid' entreift. Kann der Gewaltige den Krieg, doch nicht Belehria, wie der Salf fi h aus den Lüften Burückschwingt auf bes Jagers Band, gehorcht Der wilde Gott dem Ruf der Menschenftimme. Richt aveimal fommt im rechten Angenblick, Bie bent, Die Sand des Rettere aus den Wolfen.

Examination Papers.

LATIN GRAMMAR.

Latin Grammar.

- 1. What is quantity?
- 2. Indicate and give the rule for the quantity and accent of the following words: Constituit, magister, Scipio, cura applaudo.
 - 3. Give the terminations of the first declension.
 - 4. Give the accusative singlar of servus.
 - 5. Give the ablative plural of vir.
- 6. Give the terminations of the third declension in the plural number.
 - 7. Give the accusative and ablative singular of urbs.
- 8. What are the terminations of the fourth declension in the genitive and dative plural?
 - To what declensions must adjectives belong?
 - 10 How are adjectives compared?
- 11. Give the comparative degree of mitis, and decline the comparative thus formed.
 - Compare magnus.
 - 13. How are adverbs formed from adjectives?
- 14. Give the third person, singular number, imperfect tense, indicative mode, of sum
- 15. Give the first person, plural number, pluperfect tense, indicative mode, of sum.
- 16. Give the second person, singular number, future tense, indicative mode, of sum.
 - Decline tu.
 - 18. Decline idem in the singular number.

- 19. In what respect does the declension of the interrogative pronoun differ from that of the relative pronoun?
 - 20. Give the genitive singular of ipse.
 - 21. Give the dative singular of ille.
 - 22. Give the genitive plural of hic.
 - 23. Give the accusative plural of qui.
 - 24. Give the first ten of the cardinal numbers.
- 25. Give a verb of each conjugation, in the present tense, infinitive mode, active voice.
- 26. Give the third person, singular number, imperfect tense, indicative mode, active voice, of exerceo.
- 27. Give the second person, singular number, future tense, indicative mode, active voice, of duco.
- 28. Give the first person, plural number, future perfect tense, indicative mode, of punio.
- 29. Give the present and future tenses, imperative mode, active voice, of amo.
- 30 Give the terminations of the present tense, indicative mode, active voice, in each conjugation.
- 31. Give the first person, plural number, present tense, subjunctive mode, active voice, of audio.
- 32. Give the third person, plural number, present tense, subjunctive mode, active voice, of tego.
- 33. Give the terminations of the pluperfect tense, subjunctive mode, active voice.
- 34. What root of the verb is used in forming the imperfect tense?
 - 35. Give the supines of the verb laudo.
- 36. Give the termination of the third person, singular number, present tense, indicative mode, passive voice, first conjugation.
- 37. Give the termination of the first person, plural number, imperfect tense, indicative mode, passive voice, second conjugation.

- 38. Give the termination of the second person, singular number, future tense, indicative mode, passive voice, third conjugation.
 - 39. Translate into English:-
- Hoc bellum est saevissimum.
 Vir duos filios habet.
 Quot horas habet unus dies?
 Spes Romanos descrebat.
 Liberi erant non magni, sed boni pulchrique.
 - 40. Translate into Latin :-
- 1. The men fight bravely. 2. The boy whom you have blamed was my brother. 3. As are the masters, so are the slaves. 4. Call the boy. 5. The king himself leads his army.

Examination Papers.

CAESAR

CÆSAR.

FIRST SESSION.

- 1. Define antepenult; epicenes. Which declensions have no proper names? Give the gen. sing. of Thisbe, Iber, aper, Androgeos, arundo, Anio, lac, guttur, fel, flumen, hepar, as, veles, obses, bes, glis, ros, rhinoceros, heros, sidus, incus, Amathus, princeps, fax, grex, remex, nix, lampas, cantus, veru, domus, dies, jusjurandum, asper, ater nullus, puter, brevis, gravior, ego, ille, hic, idem, siquis; the dat. sing. of faber, Jesus, caro, Dido, amor, mel, far, ebur, pedes, Ceres, pes, lis, glos, nepos, acus, incus, juventus, laus. nex, grex, currus, respublica, totus, ingens, ipse, qui, alquis; the acc. sing. of Penelope, Delos, pelvis, turris, pars, lampas, Tros, aer, Paris, Theseus, Xerxes, gelu, plus, is, quisque, quispiam; the voc. sing. of filius, Horatius, Orpheus; the abl. sing. of calcar, far, vis, Aprilis, Tigris, turris, rus signifying in the country, celeber, prudens.
- 2. Give the nom. plur. of sedile, domus, navis, caput, deus; the gen. plur. of nox, lapis, nubes, canis, urbs, cliens, bos, domus, volucer, idem; the dat. plur. of filia, mula, carmen, mos, bos, sus, poema, acus, tribus, genu, duo, ego, tu, aliquis; the comparative of brevis, felix, beneficus, dexter, malus; the superlative of facilis, acer, extera, magnus, prior; the first ten ordinals; the second ten distributives; the third ten numeral adverbs.
- 3. Give the synopsis of amo, active, first person singular; of moneo, active, third person singular; the prin. parts, act. and pass., of rego and audio.
- 4. Give the synopsis of rego, passive, second person singular; of audio, passive, second person plural; the prin. parts, act. and pass., of amo and moneo.

CÆSAR.

SECOND SESSION.

- 1. Intěrim quotidie Cæsar Aeduos frumentum, quod essent publice polliciti, flagitāre; nam propter frigŏra, quod Gallia sub septentrionībus. ut ante dictum est, posīta est, non modo frumenta in agris matūra non erant, sed ne pabúli quidem satis magna copia suppetēbat; eo autem frumento, quod flumine Arăre navībus subvexērat, propterea uti minus potērat, quod iter ab Arāre Helvetii avertērant, a quibus discedēre nolēbat. Diem ex die ducēre Aedui; conferri, comportāri, adesse dicēre.
- 2. Tum demum Liseus oratione Caesaris adductus, quod antea taeuërat, proponit: esse nonnullos, quorum auctoritas apud plebem plurimum valeat; qui privatim plus possint, quam ipsi magistratus. Hos seditiosa atque improha oratione multitudinem deterrere, ne frumentum conférant; quod præstare debeant. Si jam principatum Galliae obtinere non possent, Gallorum quam Romanorum imperia perferre; neque dubitare debeant, quin, si Helvetios superavérint Romani, una cum reliqua Gallia Aeduis libertatem sint erepturi.
- 3. Hacc quum pluribus verbis flens a Caesare peteret, Caesar ejus dextram prendit: consolātus rogat finem orandi faciat: tanti ejus apud se gratiam esse ostendit, uti et reipublicae injuriam et suum dolorem ejus voluntāti ac precibus condonet. Dumnorigem ad se vocat, fratrem adhibet: quae in eo reprehendat, ostendit; quae ipse intelligat, quae civitas querātur, propōnit: monet, ut in reliquum tempus omnes suspiciones vitet: praeterita se Divitiáco fratri condonare dicit.
- 4. Labiënus, ut erat ei praeceptum a Caesăre, ne proelium committeret, nisi ipsius copiae prope hostium castra visae

essent, ut undique uno tempôre in hostes impêtus flèret, monte occupâto nostros exspectâhat procliòque abstinêbat. Multo denique die per exploratores Caesar cognôvit, et montem a suis tenêri et Helvetios castra movisse et Considium, timôre perterritum, quod non vidisset, pro viso sibi renunciasse.

- 5. Diutius quam nostrorum impetus sustinere non possent, alteri se, ut cœperant, in montem receperunt; alteri ad impedimenta et carros suos se contulerunt. Nam hoc toto prœlio, quam ab hora septima ad vesperum pugnatum sit, aversum hostem videre nemo potuit. Ad multam noctem etiam ad impedimenta pugnatum est, propterea quòd pro vallo carros objecerant, et e loco superiore in nostros venientes tela conjiciebant, et nonnuli inter carros rotasque mataras ac tragulas subjiciebant, nostrosque vulnerabant.
 - 6. If you are at home, it is well. He says that, if you are at home, it is well. He said that, if you were at home, it was well.

If you go home, it will be well.

He says that, if you go home, it will be well.

He said that, if you went home, it would be well.

If saw the king, you saw a renowned man.

He says that you saw a renowned man, if you saw the king.

 $\hat{\mathbf{He}}$ said that you saw a renowned man, if you saw the king.

If you marry Cæsar, it will be well.

He says that, if you marry Cæsar, it will be well.

He said that, if you married Cæsar, it would be well.

If you had been well, you would have rejoiced.

He said that you would have rejoiced, if you had been well.

Change into the oratio obliqua: Si veteris contumeliae oblivisci volo, num etiam recentium injuriarum memoriam deponere possum?

Examination Papers.

CICERO

CICERO.

I. What was the object of the lex Manilia?

Why was it called Manilia?

Where was the oration pro lege Manilia delivered?

In what year?

Before whom?

How old was Cicero when he delivered this oration?

What office did he hold?

What result attended his efforts?

2. How many classes of orations did ancient writers recognize? What were they?

To which class does this oration belong?

Give an analysis or plan of the whole oration, including the statement of the arguments, and the subdivisions of them.

3. Translate:-

Majores nostri saepe, mercatoribus aut naviculariis nostris injuriosius tractatis, bella gesserunt: vos, tot civium Romanorum milibus uno nuntio atque uno tempore necatis, quo tandem animo esse debetis? Legati quod erant appellati superbius, Corinthum patres vestri, totius Graeciae lumen, exstinctum esse voluerunt: vos eum regem inultum esse patiemini, qui legatum populi Romani consularem, vinculis ac verberibus atque omni supplicio exeruciatum, necavit? Illi libertatem civium Romanorum imminutam non tulerunt: vos ereptam vitam negligetis? Jus legationis verbo violatum illi persecuti sunt: vos legatum, omni supplicio interfectum, relinquetis? Videte, ne, ut illis pulcherrimum fuit tantam volis imperii gloriam tradere, sic vobis turpissimum sit, id quod accepistis, tueri et conservare non posse.

4. Translate :--

Hie jam plura non dicam. Fuit enim illud extremum, ut ex iis locis a militibus nostris reditus magis maturus quam processio longior quaereretur. Mithridates autem et suam manum jam confirmarat [et eorum, qui se ex ipsius regno collegerant], et magnis adventiciis auxiliis multorum regum et nationum juvabatur. Jam hoc fere sic fieri solere accepimus, ut regum afflictae fortunae facile multorum opes alliciant ad misericordiam, maximeque eorum, qui aut reges sunt, aut vivunt in regno; ut iis nomen regale magnum et sauctum esse videatur. Itaque tantum victus efficere potuit, quantum incolumis nunquam est ausus optare. Nam quum se in regnum suum recepisset, non fuit eo contentus, quod ei praeter spem acciderat, ut illam, posteaquam pulsus erat, terram unquam attingeret; sed in exercitum nostrum clarum atque victorem impetum fecit.

5. Translate:-

Itaque non sum praedicaturus, quantas ille res domi militiae, terra marique, quantaque felicitate gesserit; ut ejus semper voluntatibus non modo cives assenserint, socii obtemperarint, hostes obedierint, sed etiam venti tempestatesque obsecundarint: hoc brevissime dicam, neminem unquam tam impudentem fuisse, qui ab diis immortalibus tot et tantas res tacitus auderet optare, quot et quantas dii immortales ad Cn. Pompeium detulerunt. Quod ut illi proprium ac perpetuum sit, Quirites, quum communis salutis atque imperii, tum ipsius hominis causa, sicuti facitis, velle et optare debetis.

Quare, quum et bellum sit ita necessarium ut negligi non possit, ita magnum, ut accuratissime sit administrandum, et quum ei imperatorem praeficere possitis, in quo sit eximia belli scientia, singularis virtus, clarissima auctoritas, egregia fortuna, dubitabitis, Quirites, quin hoc tantum boni, quod vobis ab diis immortalibus oblatum et datum est, in rem publicam conservandam atque amplificandam conferatis?

6. Translate into Latin :-

(a.) The foundation of permanent fame is justice, without which there can be nothing praiseworthy.

- (b.) In regard to what you write, that you wish to know what is the state of the republic: there is very great discord.
- (c.) He takes away the greatest ornament of friendship who takes away mutual respect.
 - (d.) Be such, as you would wish to be considered.
- 7. What difference in meaning between lumen and lux? What difference between omnis, universus, totus, cunctus? What is the rule for the mood of videatur, in 4? What is the rule for the mood of auderet, in 5? What is the construction of boni, in 5?

Examination Papers.

VIRGIL'S ÆNEID.

DECEMBER, 1878.

Virgil's Æneid.

- 1. where, and at about what time, was Virgil's Æneid composed?
 - 2. What sort of a poem is it, and why so called?
- 3. Of how many books does it consist, and about how long was the author engaged in its composition?
 - 4. Give an epitome of the first and second books.
- 5. Name and define the feet used in the Æneid, tell how they are arranged, and explain how there can be so great variety in poetry containing but two kinds of metrical feet-
 - 6. What is scanning?
- 7. Scan the following lines, indicating the quantity of each syllable by the proper mark over its vowel, the division of the feet by perpendicular lines, observing the proper syllabication, and marking the verse caesura by two lines:
 - 8. Conticuere omnes, intentique ora tenebant, Inde toro pater Æneas sic orsus ab alto:
 - "Infandum Regma, jubes renovare dolorem, Trojanas ut opes et lamentabile regnum Eruerint Danai; quæque ipse miserrima vidi, Et quorum pars magna fui."
 - 9. Parse miserrima.
 - 10. Translate:-

O dea, si prima repetens ab origine pergam. Et vacet annales nostrorum audire laborum, Ante diem clauso componet Vesper Olympo. Nos Troja antiqua, si vestras forte per aures Trojae nomen iit, diversa per aequora vectos Forte sua Libycis tempestas appulit oris.

Sum pius Aeneas, raptos qui ex hoste Penates Classe veho, mecum, fama super aethera notus. Italiam quaero patriam et genus ab Jove summo.

11. Translate:-

Jamque ibat, dicto parens, et dona Cupido Regia portabat Tyriis, duce laetus Achate. Quum venit, aulaeis jam se regina superbis Aurea composuit sponda mediamque locavit. Jam pater Aeneas et jam Trojana juventus Conveniunt, stratoque super discumbitur ostro. Dant famuli manibus lymphas, Cereremque canistris Expediunt, tonsisque ferunt mantelia villis.

12. Translate:-

Primus se, Danaum magna comitante caterva, Androgeos offert nobis, socia agmina credens Inscius, atque ultro verbis compellat amicis: Festinate, viri! Nam quae tam sera moratur Segnitics? Alii rapiunt incensa feruntque Pergama; vos celsis nunc primum a navibus itis? Dixit, et extemplo—neque enim responsa dabantur Fida satis—sensit medios delapsus in hostes. Obstupuit, retroque pedem cum voce repressit.

- 13. State where the first four verbs in 10 are found.
- 14. Govern dicto, duce, anlæis and sponda, in 11.
- 15. Derive an English word (giving its etymon) from each word (or its root) in the first line of 8.
- :6. Give the meaning (i. e., the etymon or real meaning) and the reason for the spelling of deign, condign and indignant.
- 17. Explain the term accent as used by the ancients, and show wherein such use differs from our apprehension of the same term when applied to our own language.

Examination Papers.

GREEK LESSONS.

DECEMBER, 1878.

GREEK LESSONS.

TRANSLATE:---

- Συλλαμβάνει Κύρον. Κύρος συλλαμβάνει. Πέμπει Λύχιον. Καὶ πέμπουσι Καλλίμαχον. Χειρίσοφος πέμπει. Ένταῦθα δη λέγει Χειρίσοφος. Ἐπιβουλεύει Κύρφ. ¾2 Κύρε, λέγουσιν. Φέρουσι λίθους. "Αρχουσι Λαχεδαιμόνιοι. ¾2 Φαλῖνε, θαυμάζω.
- Αναβαίνει οὖν ὁ Κὖρος. *Ερχεται πρὸς τὸν Κὖρον.
 Ἐξελαύνει διὰ τῆς Λυδίας. Πάλιν φαίνεται ὁ Μιθριδάτης.
 ὁ δὲ 'Ετεόνικος εἰς τὴν ἄκραν ἀποφεύγει. 'Επὶ ταῖς πηταῖς τοῦ Μαρσύου ποταμοῦ. 'Εν ταῖς κόμαις ταῖς ὁπὲρ τοῦ πεδίου τοῦ παρὰ τὸν Κεντρίτην ποταμόν.
- 3. Ένταδθα ήσαν κώμαι. Οδτω δὲ ἔχει. Φίλος τε και σύμμαχος εἶναι βούλεται. Και οί μὲν στρατηγοί ἐπουθάνοντο περί τοῦ Σεύθου, πότερα πολέμιος εἴη ἢ φίλος. Ἐλέγετο, δὲ ὁ στόλος εἶναι εἰς Πεισίδας. Παρῆν δὲ καὶ Χειρίσοφος ὁ Λακεδαιμόνιος. Καὶ τὴν ὁδὸν ἔφραζεν, ϟ εἴη.
- 4. Ενταῦθα ἀφικνεῖται 'Επύαξα. Λίθους εἰς τὸν ποταμὸν ἐρρίπτουν. `Εφοβοῦντο αὐτόν. 'Ως αὐτὸς σὐ ὁμολογεῖς. Αὐτός εἰμι, ὃν ζητεῖς. 'Εμοὶ οὖν ὀοκεῖ οὐχ ἄρα εἰναι ἡμῖν καθεύδειν, οὐδ' ἀμελεῖν ἡμῶν αὐτῶν. 'Ο Κῦρος συλλαμβάνει 'Θρόντην καὶ συγκαλεῖ εἰς τὴν ἑαυτοῦ σκηνὴν Περσῶν τοὺς ἀρίστους τῶν περὶ αὐτὸν ἑπτά.
- 5. Let us take counsel. Let them learn both to rule and to be ruled. Clearchus, if you wish, speak. But, if they will, let them remain. Let Proxenus march. Clearchus is not willing to journey with

Arizeus, Let us not march with Cyrus. O Lacedæmonians, let us consult together. Let them march, if they will.

- 6 But on the fourth day the 'trumpeters give a signal. Thereupon the heads of the robbers are cut off. If indeed the deity should so direct. Mithridates flies at full speed, and throws himself into the sea. The truce remains. The soldiers wonder at the truce.
- 7. The barbarians said to Clearchus, that they had come respecting a truce. The soldiers themselves said, that they were deliberating in common about the rest of their journey. Tracks of horses appear. Thereupon the targeteers themselves take some of the same horses. On the same day Seuthes was hunting on horseback. And he cheerfully complied for he confided in the Lacedæmonians.
- 8. We plot against them with good reason, for they have our property. Do not wait for others to come to you. You and I have the same enemies. We can now take pledges from them.
- 9. Inflect $\pi \dot{\epsilon} \mu \pi \omega$, in the active indicative present, and $\tau \epsilon \mu d\omega$ in the passive indicative present.
 - 10. Write the synopsis of λύω, in the active voice.
 - 11. Decline λόγος, πέδον and ήμέρα.
- 12. Derive stenographer, phænomenon, lithograph, heliotrope, theology, Mesopotamia, pause, hippomachy, archangel and parallel.
- 13. Derive an English word from each of the following words: αδελφός, ακούω, πέντε, αγωνίζομαι, συφός.
 - 14. Compare σοφός and ἀγαθός.

Examination Papers.

XENOPHON'S ANABASIS.

DECEMBER, 1878.

XENOPHON'S ANABASIS.

- 1. Give some general account of Xenophon, including his birth, educational advantages, attainments and character, and state your personal opinion of his ability as a writer.
- 2. Which Cyrus is referred to in Xenophon's Anabasis? How is he commonly distinguished from an other Persian of the same name? What did he undertake to do, and with what result?
- 3. Give an epitome, ἐπιτομή, of Xenophon's narrative, as far as you have read.

TRANSLATE:-

- ... Έχάλεσε δὲ καὶ τοὺς Μίλητον πολιορχοῦντας, καὶ τοὺς φυγάδας ἐκέλευσε σὺν αὐτῷ στρατεὐεσθαι, ὑποσχόμενος αὐτοῖς, εἰ καλῶς καταπράξειεν ἐφ, ἄ ἐστρατεύετο, μὴ πρόσθεν παύσασθαι, πρὶν αὐτοὺς καταγάγοι οἴκαδε. οἱ δὲ ἡδέως ἐπείθυντο ἐπίστευον γὰρ αὐτῷ. καὶ λαβόντες τὰ δπλα παρῆσαν εἰς Δάρδεις.
- 5. Οι δε ποιήσαντες εχχλησίαν ἀπήγγελλον ταῦτα οι δε στρατιῶται εχαλέπαινον τοῖς στρατηγοῖς, καὶ εκασαν αὐτοὺς πάλαι ταῦτ' εἰδότας κρύπτειν, καὶ οὐκ εκασαν ἰέναι, εὰν μή τις αὐτοῖς χρήματα διδιῷ ιὅσκερ καὶ τοῖς προτέροις μετὰ Κύρου ἀναβῶσι παρὰ τὸν πατέρα τοῦ Κύρου, καὶ ταῦτα οὐκ ἐπὶ μάχην ἰόντων, ἀλλὰ καλοῦντος τοῦ πατρὸς Κῦρον.

- 6. Δίορα δὲ πλεῖστα μὲν οἰμαι εἰς γε τον ἀνὴρ ἐλάμβανε διὰ πολλά ταὐτα δὲ πάντων δὴ μάλιστα τοῖς φίλοις διεδίδου, πρὸς τοὺς τρόπους ἐκάστου σχοπῶν καὶ ὅτου μάλιστα ὁριῷη ἐκαστον δεόμενον. καὶ ὅσα τῷ σώματι αὐτοῦ κόσμον πέμποι τις ἢ τῶς εἰς πόλεμον ἢ τῶς εἰς καλλωπισμόν, καὶ περὶ τοὑτων λέγειν αὐτὸν ἔφασαν, ὅτι τὸ μὲν ἑαυτοῦ σῶμα οὐκ τὸ τὸνκαιτο τούτοις πὰσι κοσμηθῆναι, φίλους δὲ καλῶς κεκοσμημένους μέγιστον κόσμον ἀνδμὶ νομίζοι.
- 7. Νον δ' ἐπινοούμεν πομεύεσθαι μαχροτέραν μέν τῶν δ' ἐπιτηδείων οὐχ ἀπορήσομεν. πομευτέον δ' ἡμῖν τοὺς πρώτους σταθμοὺς ὡς ἀν δυνώμεθα μαχροτάτους, ἴνα ὡς πλεῖστον ἀποσπασθῶμεν τοῦ βασιλιχοῦ στρατεύματος. ἢν γὰρ ἀπαξ δύο ἢ τριῶν ἡμεριῶν όδὸν ἀπόσχωμεν, οὐχέτι μὴ δύνηται βασιλεὺς ἡμὰς χαταλαβεῖν. ὀἰίγψ μὲν γὰρ στρατεύματι οὐ τολμήσει ἐφέπεσθαι. πολὺν δ' ἔχων στόλον οὐ δυνήσεται ταχέως πορεύεσθαι. ἴσως ∂ὲ χαὶ τῶν ἐπιτηδείων σπανεῖ. ταὑτην, ἔφη, τὴν γνώμην ἔχω ἔγωγε.
- 8. The hill is high. The hills are not high. The houses in the village are not so high as the hill. These hills are not so high as the one near the village. Whose are these gardens? They are mine. They are my brothers. Who writes these things? The father writes these letters to his good son. The brother writes this letter to his sister. This beautiful letter. These beautiful peacocks. This wise young man pursues these peacocks onto the hill. Who writes this beautiful letter? I said, either on the table, or onto the roof, or by the spring, or into the river, or in the house, or out-of the plain, or from the garden, or with the horses, or over the rocks, or around the table, or under the sun.
- 9. State where δποσχόμενος, καταπράξειεν, παύσασθαι and κατάγαγοι (in 4), are made, and give the rules for the moods of the last two.

- 10. (a) Govern ἡμᾶν and ὁδόν (in 7.) What is πομευτέον, and what is the Latin equivalent for such words?
- (b) Derive and give the etymon of some English word from the root of each of the following words in 7:—πρώτους, δποσπασθῶμεν, στρατεύματος, δύο, τρεῶν ὁδόν, δύνηται and καταλαβεῖν. [Observe the distinction between root and stem.]
- 11. Derive trapezoid, programme, protomartyr, paradox, orthodox, heterodox, hydrostatics, microphone, anthropology and onomatopæia.

EXAMINATION PAPERS.

GERMAN GRAMMAR.

GERMAN GRAMMAR.

- I. How many forms of declension has the attributive adjective?
- II. Give the three degrees of comparision of gut, viel, groß, fahl and ebel.
- III. What is the result of prefixing after to the imperlative?
- IV. Write out the Cardinal Numbers from \mathfrak{cins} to fünfig in words.
 - V. How are the Multiplicatives formed?
 - VI. Conjugate loben in full.
- VII. Decline the Personal Pronouns in both Numbers.
 VIII: How do we avoid a repetition of the personal pronoun of the third person?
 - IX. How can wer and was be made more emphatic?
- X. Give the Principal Parts of effen, brechen, breunen, beiften and weben.
- XI. How does the adverb her and its compound differ in its definition from the adverb hin and its compounds.
- XII. Write out the Prepositions governing the accusative case.
- XIII. Translate the following Interjections: Gottlob, leiber, recht so, vorwärts and ju Hüsse.
- XIV. Translate into German: The old General Ziethen had fallen asleep in presence of Frederick the Great. A page who had noticed it, wanted to awake him, but the king exclaimed: He has watched often enough for us, let him sleep now.

XV. Translate:

Reifebeichreibungen.

Es giebt viele Leute, welche einige Monate in einem Lande gereifet find, welche fich ein oder zwei Bochen in der hauptstadt aufgehalten haben, und die fich nicht vor der Bacherlichfeit fürchten, ein Urtheil über das Land und feine Bewohner gu fällen. Erfindung der Dampfichiffe und der Gifenbahnen hat fich die Rahl Diefer Reifenden fehr vermehrt, und man muß jest ben Schilderungen ber meiften Touriften fast eben fo miftrauen, ale ben Ergahlungen eines Jagers, dem es einfallt, uns feine Abenteuer mitzutheilen. Es wundert mich nicht, daß viele Leute feine Reifebefdreibungen mehr lefen wollen, und bag es andere reut, fie gelefen gu haben, wenn fie bas Land felbft feben. Dem Ginen ift ju marin gemefen an bem Tage, mo er in einem Baggon eingeichloffen durch eine Begend fuhr, ben Undern, ber einen Regentag hatte, hat in derfelben Begend gefroren. Der Erfte findet bas Rlima bes Landes zu heiß, der Zweite beflagt fich über die Ralte. Diefem ift es nicht gelungen, mahrend feines Aufenthaltes in einer Stadt eingeladen zu merben: er findet, daß es den Ginmohnern an Gaftlichkeit und an Boflichkeit fehlt. Gin Anderer ift mit bem Bedanten abgereift, Alles wie in feinem Baterlande gu finden. Es mare ihm lieb gemefen, in ber Sauptftadt des fremben Landes bie Suppen und Berichte ju effen, welche er gu Baufe nicht ents behren tonnte, und gerade ju derfelben Stunde ju frühltuden und ju Mittag ju fpeifen. Gin Dritter wundert fich, daß die Leute ibn nicht jo gut verfteben, wie ju Baufe, und es argert ihn, wenn Jemand fich die Freiheit nimmt, ihn zweimal zu fragen, mas er hat fagen wollen. Mit einem Borte, oberflächliche Urtheile werben alle Tage auf Reifen gebort. Gin Englander, welcher fich eine Racht in einer fleinen Stadt Franfreiche aufgehalten hatte, mar von einem Rellner bedient worden, welcher rothe Saarc hatte, stotterte und nicht sehr höflich war. Am andern Morgen schrieb er in fein Tagebuch: "Die Ginwohner diefer Stadt haben rothe Saare, ftottern und find fehr grob."

EXAMINATION PAPERS.

German Reader.

GERMAN READER.

I. Translate:

Unfinn, du siegst, und ich muß untergehen; Mit der Dummheit tämpfen Götter selbst vergebens. Erhabene Bernunft, lichthelse Tochter Des göttlichen Hauptes, weise Gründerin Des Weltgebäudes, Führerin der Sterne, Wer bist du denn, wenn du dem tollen Roß Des Aberwiges an den Schweif gebunden, Ohnmächtig rusend, mit dem Trunkenen Dich sehend in den Abgrund stürzen mußt! Berflucht sei, wer sein Leben an das Große Und Würze weisen Weise und bedachte Pläne Mit weisem Geist entwirft! Dem Narrentönig Gehört die Welt-

II. If possessive pronouns differ in gender, what must be done with them.

III. Translate:

Goethe and Shakespeare were two great poets, the former was a German, the latter an Englishman.

- IV. To what does mogen correspond when used negatively?
- V. What is the difference between müffen and follen?
- VI. What are the significations of laffen?
- VII. Translate:

He would have written you, if you had asked it.

VIII. When the subjunctive is used in place of the imperative, what does it express?

IX. Translate:

Die Berrlichfeit ber Belt vergeht, Rur mas wir Gutes thun, besteht.

X. Translate:

"They who have employed the study of history, for their instruction, for the regulation of their private matters, and for the management of public affairs, must agree with me, that it is the most pleasant school of wisdom. It is a familiarity with past ages, and an acquaintance with all the heroes of them. It is, if you will pardon the similitude, a perspective glass carrying your soul to a vast distance, and taking in the farthest objects of antiquity. It informs the understanding by the memory; it helps us to judge of what will happen, by showing us the like revolution of former times. For mankind being the same in all ages, agitated by the same passions, and moved to action by the same interests, nothing can come to pass, but some precedent of the like nature has already been produced; and having the causes before our eyes, we cannot easily be deceived in the effects, if we have judgment enough to draw the parallel."

XI. Where are adverbs of time placed?

XII. What does an, auf, aus, bei, burch, für, gegen, in, nach and über signify?

XIII Translate the following Idioms:

- 1. To fight a duel with pistols.
- 2. To be all over with anyone.
- 3. To put up with.
- 4. It is with us as with all the poor.
- 5. To part with.

XIV. Write five German questions and answers on the study of German.

XV. What is the construction of a simple sentence?

ROCHESTER FREE ACADEMY.

EXAMINATION PAPERS.

LATIN READER.

LATIN READER.

T.

Translate:

Cani mordaci paterfamilias jussit tintinnabulum ex aere appendi ut omnes eum cavēre possent. Ille verò aeris tinnītu gaudebat, et, quasi virtutis suae præmium esset alios canes prae se contemnere cœpit, cui unus senior, O te stolidum, inquit, qui ignorāre vidēris, isto tinnītu pravitātem morum tuorum indicari.

Derive mordaci. Derive an English word from the same primitive. Compare senior. On what principle is possent put in the Subjunctive? In what case is te? Govern tinnitu. What is the syntax of indicari? How is paterfamilias formed? How is it declined?

TT.

Translate:

Non curo, inquit hœdus; nam si moriendum sit, quanto praeclarius mihi erit, meo cruore aspergi aras deorum immortalium quam irrigari siccas lupi fauces.

What is the conjugation of moriendum sit? What does this form of conjugation signify? In what case is quanto? Why? Govern cruore. What is the composition of aspergo? What kind of a noun is fauces? What is denoted by the termination ius of praeclarius? What sylable of praeclarius is accented? Why?

III.

Translate:

Tum Mors senis precibus audītis subitò adstitit, et, quid vellet, percunctātur. At Senex, quem jam votorum suörum

poenitebat, nihil, inquit, sed requiro, qui onus paululum allievet, dum ego rursus subeo.

What are the principal parts of vellet? What is the syntax of auditis precibus? How is quem governed? What is the composition of adstitit? Inflect the tense. What is the root of onus? What is its gender—its construction here? Can you name a derivative?

IV.

Translate:

Se enim avidissimum ventrem illius non posse expétere, et suadère adeò, ut grandiòres aliquas volucres venétur. Cui accipiter, Insanirem, inquit. si partam praedam amittere, et incerta pro certis sectari vellem.

What part of speech is partam? From what verb is it derived? What are its properties? What word determines these? With what does incerta agree? Decline illius. What does it limit? By what rule? What is the syntax of se? Derive hesitate, majority, precarious, satisfaction federal

V.

Translate:

Hinnuleus quondam patrem suum his verbis interrogâsse dicitur: Mi pater, quum multo sis major canibus et tam ardua cornua habeas, quibus, a te vim propulsare possis qui fit, ut canes tantopere metuas?

Write the ablative case, singular and plural number of every noun in the sentence. What is indicated by the mark over the penult syllable of interrogasse? In what case is pater? Govern vim. What is the construction of canibus? Why? Write the accusative case, singular and plural number of every pronoun in the sentence. Give a synopsis of habeas in the second person, singular number.

EXAMINATION PAPERS.

CAESAR.

CAESAR.

T.

1. Translate:

Horum adventu tanta rerum commutatio est facta, ut nostri, etiam qui vulneribus confecti procubnissent, scutis innixi, proelium redintegrărent; tum calônes, perterritos hostes conspicăti, etiam inermes armătis occurrerent; equites vero, ut turpitudinem fugae virtute delerent, omnibus in locis pugnae se legionariis militibus praeferrent. At hostes etiam in extrema spe salutis tantam virtutem praestiterunt, ut quum primi eorum cecidissent, proximi jacentibus insisterent, atque ex eorum corporibus pugnărent; his dejectis et coacervătis cadaveribus, qui superessent, ut ex tumulo, tela in nostros cojicerent et pila intercepta remitterent; ut non nequidquam tantae virtutis homines judicări deberet ausos esse transire latissimum flumen, ascendere altissimas ripas, subīre iniquissimum locum: quae facilia ex difficillimis animi magnitudo redegerat.

2. Translate:

Brevi spatio interjecto, vix ut his rebus, quas constituissent, collocandis atque administrandis tempus daretur, hostes ex omnibus partibus, signo dato, decurrere, lapides gaesaque in vallum conjicere. Nostri primo, integris viribus, fortiter repugnare, neque ullum frustra telum ex loco superiore mittere; ut quaeque pars castrorum nudata defensoribus premi videbatur, eo occurrere et auxilium ferre; sed hoc superari, quod diuturnitate pugnae hostes defessi proelio excedebant, alii integris viribus succedebant; quarum rerum a nostris propter pancitatem fieri nihil poterat; ac non modo defesso ex pugna excedendi, sed ne saucio quidem ejus loci, ubi constiterat, relinquendi ac sui recipiendi facultas dabatur.

3. Translate:

Erant hae difficultates belli gerendi, quas supra ostendimus, sed multa Caesarem tamen ad id bellum incitabant: injuriae retentorum equitum Romanorum; rebellio facta post deditionem; defectio datis obsidibus; tot civitatum conjuratio; in primis, ne, hac parte neglecta, reliquae nationes sibi idem licere arbitrarentur. Itàque quum intelligeret, omnes fere Gallos novis rebus studere, et ad bellum mobiliter celeriterque excitari, omnes autem homines natura libertati studere et conditionem servitutis odisse, prinsquam plures civitates conspirarent, partiendum sibi ac latius distribuendum exercitum putavit.

4. Translate:

Prima luce, productis omnibus copiis, duplici acie instituta, auxiliis in mediam aciem conjectis, quid hostes consilii caperent, exspectabat. Illi, etsi propter multitudinem et veterem belli gloriam paucitatemque nostrorum se tuto dimicaturos existimabant, tamen tutius esse arbitrabantur, obsessis viis, commeātu intercluso, sine ullo vulnere victoria potiri; et, si propter inopiam rei frumentariae, Romani sese recipere coepissent, impeditos in agmine et sub sarcinis infirmiori animo adoriri cogitabant. Hoc consilio probato ab ducibus, productis Romanorum copiis, sese castris tenebant. Hac re perspecta, Crassus, quum sua cunctatione atque opinione timidiores hostes nostros milites alacriores ad pugnandum effecissent, atque omnium voces audirentur, exspectari diutius non oportere, quin ad castra iretur, cohortatus suos, omnibus cupientibus, ad hostium castra contendit.

II.

- 5. In one (1).
 - a). Govern scutis.
 - b). Give principal parts of cecidissent.
 - c). Parse ausos esse.
 - d). In what construction is quae?
 - e). Govern facilia.
- 6. In two (2).
 - a). What is the subject of decurrere?
 - b). Govern defensoribus.

- c). Parse defesso.
- d). Govern excedendi.
- e). Govern relinquendi.
- 7. In three (3).
 - a). Govern multa.
 - b). In what construction is injuriae?
 - c). Govern libertati.
 - d). What peculiarity about odisse?
 - e). Govern sibi.
- 8. In four (4).
 - a). Govern consilii.
 - b). Govern tutius.
 - c). Govern timidiores.
 - d). In what construction is victoria?
 - e). Why is iretur in the subjunctive?
 - . Translate into Latin:
 - a). No man can be happy, without virtue.
 - b). Paris said, that Hector waged cruel wars with a bloody hand.
 - c). The Pythagoreans believed that souls migrated from one animal to another.
 - d). The poets have introduced the gods both inflamed with anger and raging with passion.
 - e). We are ready to refute without obstinucy, and to be refuted without anger.

ROCHESTER FREE ACADEMY.

EXAMINATION PAPERS.

VIRGIL.

VIRGIL.

- Give a brief account of the subjects of the fifth and sixth books; of the literature of the subject of the latter, its relation to modern literature, and to some phase or phases of modern thought.
- Scan: Sævit inops animi, totamque incensa per urbem Bacchatur, qualis commotis excita sacris.
 Thyas, ubi audito stimulant trieterica Baccho Orgia nocturnusque vocat clamore Cithæron.
 - In doing the work, draw a perpendicular line through the verse, at the end of every foot but the last, two perpendicular lines at each *verse-casura*, and be careful not to split a syllable.

Translate:

- 3. Nox erat, et placidum carpebant fessa soporem Corpora per terras. silvaeque et saeva quierant Aequora, quum medio volvuntur sidera lapsu. Quum tacet omnis ager, pecudes pictaeque volucres, Quaeque lacus late liquidos, quaeque aspera dumis Rura tenent, somno positae sub nocte silenti Lenibant curas, et corda oblita laborum.
- 4. Sic fatus velat materna tempora myrto.

 Hoc Helymus facit, hoc aevi maturus Acestes,
 Hoc puer Ascanius, sequitur quos cetera pubes.
 Ille e concilio multis cum millibus ibat
 Ad tumulum, magna medius comitante caterva.
 Hic duo rite mero libans carchesia Baccho
 Fundit humi, duo lacte novo, duo sanguine sacro,
 Purpureosque jacit flores, ac talia fatur:

Salve, sancte parens, iterum: salvete, recepti Nequidquam cineres, animaeque umbraeque paternae.

- 5. Ecce gubernator sese Palinurus agebat,
 Qui Libyco nuper cursu, dum sidera servat,
 Exciderat puppi mediis effusus in undis.
 Hunc ubi vix multa maestum cognovit in umbra,
 Sic prior alloquitur: Quis te, Palinure, deorum
 Eripuit nobis, medioque sub aequore mersit?
 Dic age. Namque mihi, fallax haud ante repertus,
 Hoc uno responso animum delusit Apollo,
 Qui fore te ponto incolumem, finesque canebat
 Venturum Ausonios. En haec promissa fides est?
- 6 a) Give the parts of quierant (in 3), its mood and tense, and explain its form.
 - b) From what are corpora, aequora, sidera, pecudes, pictae and voluores?
 - c) The gender of myrto, the antecedent of hoc, and the agreement of medius, in 4?
 - d) Composition of exciderat, effusus, cognovit and alloquitur?
 - e) Give two English words, in common use, from each of the following Latin words: placidus, sopor, corpus, terra, volvo, pingo, pono, infelix, oculus, iter.
 - f) Define correctly: fraternal, post mortem, alibi, arson, coroner, factor, factotum, reiterate, undulatory, exhume.
 - g) Give English-Latin words in general use, for the following cumbrous compounds: following-togetherly, belonging-to-earth, belonging-to-moon, belonging-to-sun, belonging-to-place, belonging-totime, in-favor-with-the-people, in dis-favor-withthe people, all-devouring, flesh-eating, one-and-theother-ly.

EXAMINATION PAPERS.

HO'MER

HOMER.

1. State, in general, what you have learned respecting the author of the Iliad.

What other poems are attributed to him?

- 2. Which is the older, case, or preposition? Illustrate.
- 3. Explain the origin and use of the middle voice.
- 4. Give some account of the Homeric suffixes φ_{ℓ} or $\varphi_{\ell}\nu$, and θ_{ℓ} , $\theta_{\delta}\nu$, and δ_{δ} .
- 5. What is the digamma supposed to have been; and what can you say about it in relation to hiatus in Homer's poems, as they appear in modern typography?
- 6. Why cannot ancient Greek poetry be properly scanned, if the Greek accent be regarded as equivalent to the English accent?
 - 7. Scan:

Ημένη εν βένθεσσιν άλος παρά πατρί γέροντι.

" Αμφω δμώς θυμῷ φιλέουσά τε χηδομένητε.

"Ως τως' αντιβίοισι μαχεσσαμενω έπεεσσιν.

Account for the quantity of the final vowel in $\eta\mu\dot{\epsilon}\nu\eta$ and $\delta\mu\varphi\omega$.

TRANSLATE:-

- 8. ' Ατρεϊδαί τε και άλλοι ἐϋκνήμιδες Αγαιοί, δμῖν μὲν θεοὶ δοῖεν ' Ολύμπια δώμαι ἔγοντες, ἐκπέρσαι Πριάμοιο πόλιν, εὐ δ' οἴκαδ' (κέσθαι παῖδα δ' ἐμοὶ λῦσαί τε φίλην, τα τ' ἄποινα δέγεσθαι, δζόμενοι Διὸς υίὸν ἐκηβόλον Απόλλωνα.
 "Ενθ' ἄλλοι μὲν πάντες ἐπευφήμησαν ' Αγαιοι, αἰδεῖσθαί θ' [ερῆα, καὶ ἀγλαὰ δέχθαι ἄποινα ἀλλ' οὐκ Ατρείδη ' Αγαμέμνονι ἤνδανε θυμῷ, ἀλλὰ κακῶς ἀφίει, κρατερὸν δ' ἐπὶ μῦθον ἔτελλεν
- 9. Τον δ' ἀπαμειβόμενος προςέφη κρείων 'Αγαμέμνων μή δ' οδτως, ἀγαθός περ ἐών, θεοείχελ' :Αχιλλεῦ, χλέπτε νόψ! ἐπεί οὐ παρελεύσεαι, οὐδέ με πείσεις. ἤ ἐθέλεις, ὄφρ' αὐτὸς ἔχης γέρας, αὐτὰρ ἔμ' αὔτως ἤσθαι δευόμενον, χέλεαι δέ με τήνδ' ἀποδοῦναι; ἀλλ' εἰ μὲν δώσουσι γέρας μεγάθυμοι 'Αχαιοί, ἄρσαντες χατὰ θυμόν, ὅπως ἀντάξιον ἔσται — εἰ δέ χε μὴ δώωσιν, ἐγὰ δέ χεν αὐτὸς ἔλωμαι ἢ τεὸν ἢ Αἴαντος ἰὰν γέρας, ἢ 'Οδυσῆος ἄξω ἔλών · ὁ δέ χεν χεχολώσεται, ὄν χεν ῖχωμαι.
- 10. αὐτὰρ ἐπεὶ παύσαντο πόνου, τετύχοντό τε δαῖτα, δαίνυντ', οὐδέ τι θυμὸς ἐδεύετο δαιτὸς ἐίσης. αὐτὰρ ἐπεὶ πόσιος καὶ ἐδητύος ἐξ ἔρον ἔντο, χοῦροι μὲν χρητῆρας ἐπεστέψαντο ποτοῖο νώμησαν δ' ἄρα πὰσιν, ἐπαρξάμενοι δεπάεσσιν. οἱ δὲ πανημέριοι μολπῆ θεὸν ἱλάσχοντο, χαλὸν ἀεἰδοντες παιήονα, χοῦροι 'Αχαιῶν, μέλποντες 'Εχάεμγον ' ὁ δὲ φρένα τέρπετ' ἀχούων.

EXAMINATION PAPERS.

GEOMETRY

GEOMETRY.

- 1. When are two angles complements, and when supplements of each other?
 - 2. Name and define the different kinds of quadrilaterals.
- 3. What is the sum of all the interior angles of a regular octagon?
- 4. In how many ways may triangles be proved equal? In how many cases are they equivalent? Specify.
- 5. Required the base of a triangle, two of the sides of which are 24 and 27, and the length of a line drawn from the vertical angle to the middle of the base, 20.
- 6. How is the area of a plane triangle measured? of a trapezoid?
- 7. Prove that the two diagonals of a parallelogram bisect each other.
- 8. Prove that if four magnitudes constitute a proportion, the first will be to the sum of the first and second as the third is to the sum of the third and fourth.
- Prove that if lines are drawn cutting the sides of a triangle proportionally, such secant lines are parallel to the base of the triangle.
- 10. If from the right angle of a right-angled triangle, a perpendicular is drawn to the hypotenuse, what principles can be established?
- 11. What is the distinction between a circle, and a circumference?
- 12. Prove that two tangents drawn from the same point to a circle are equal.
- 13. What two lines must form a right angle at the point of contact?

- 14. Two chords on opposite sides of the center of a circle are parallel, and one of them has a length of 16 and the other of 12 feet, the distance between them being 14 feet. What is the diameter of the circle?
- 15. The diameter of a circle is 4; what is the area of the inscribed equilateral triangle?
 - 16. When is a line perpendicular to a plane?
- 17. Prove that any one of the three plane angles bounding a triedral angle is less than the sum of the other two.
- 18. A mason wishes to lay two walks at right angles to each other. How may he make a square with which he can test his work, out of three pieces of timber, each a little more than 3, 4 and 5 feet long, respectively. State the proposition in Geometry on which the operation would depend?
- 19. If, of two similar triangles, the longer side of one be to the longer side of the other as three to four, what will be the ratio of their areas?
- 20. How is the area of any circle measured? What is the circumference of a circle whose radius is 4?

HONORARY.

- 1. If AB and CD be the parallel sides of a trapezoid, and lines be drawn from the points Λ and C to the middle of the side BD; what ratio will the area of the triangle thus formed bear to the area of the trapezoid? Demonstrate.
- 2. Demonstrate that the lines which join the centres of opposite sides in any quadrilateral mutually bisect each other.
- 3. The sides of a pentagonal figure are AB, BC, CD, DE and EA, which are 7, 9, 12, 5 and 6 feet long, respectively. The perpendiculars let fall from B and E upon the diagonals AE and AD are 5 and 2 feet long, respectively. Required, area of figure

EXAMINATION PAPERS.

ALGEBRA B.

Algebra B.

- 1-3. Define Quantity, Mathematics, Algebra.
 - 4. What is a Problem?
- 5. What is the law of exponents in Multiplication? In Division? In Evolution? In Involution?

6. Given
$$\left\{ \begin{array}{l} \frac{x}{a} + \frac{y}{b} = 2ab \\ \frac{x}{ab} + \frac{y}{ab} = a + b \end{array} \right\}$$
to find values of x and y .

- 7. Simplify $\sqrt[n]{a^{mn} b^n c^{n^2} d}$.
- 8. Write the square of $x^m y^n$.
- 9. Write the product of $(\frac{1}{2}a^2-b)$ $(\frac{1}{2}a^2-b)$.
- 10. Expand $(\frac{1}{2}x^2 + y^5)^7$.

11. Multiply
$$\sqrt{\frac{ax^2}{(a+x)^3}}$$
, $\sqrt[3]{\frac{b(a-x)^3}{x^6}}$ and $\sqrt[3]{\frac{a^4c^3}{(a-x)^4}}$.

Reduce the following equations:

12.
$$x+3=\sqrt{x^2-4x+59}$$
.

14.
$$vx - |-v_{a-|-x}| = \frac{2a}{v_{a-|-x}}$$

Find the value of x in the equations

15.
$$8x^2 - |-6x = 5$$
.

16.
$$2x^{8} - |-3x - |-9| = 5 \sqrt{2x^{8} - |-3x - |-9|} = 6.$$

- 17. The sum of an arithmetical progression is 567, the first term is 7 and the common difference is 2. What is the number of terms?
 - 18. Given $\left\{\begin{array}{l} 2x^3 3xy = 50 \\ x^2 2y^3 = 50 \end{array}\right\}$ to find the values of x and y.
- 19. A farmer received 24 dollars for a certain quantity of wheat, and an equal sum for a quantity of barley, but at a price 25 cents less per bushel. The quantity of barley exceeded that of the wheat by 16 bushels. How many bushels were there of each?
- 20. What two numbers are those, whose sum is 5 and the sum of their cubes is 35.

HONORARY.

- 1. Suppose 100 balls be placed in a straight line, at the distance of a yard from each other; how far must a person travel to bring them one by one to a box placed at the distance of a yard from the first ball?
- 2. The plate of a mirror 18 inches by 12, is to be set in a frame of uniform width, and the area of the frame is to be equal to that of the glass; required the width of the frame.

3. Divide
$$2-\frac{\sqrt{a}}{\sqrt{b}}-\frac{\sqrt{b}}{\sqrt{a}}$$
 by $\frac{\sqrt{a}-\sqrt{b}}{\sqrt{ab}}$

4. $(x-|-\sqrt{a})^2-(x-|-\sqrt{a})^2=2a\sqrt{a}b$. Find the value of x.

ROCHESTER FREE ACADEMY. EXAMINATION PAPERS. ALGEBRA A. June, 1878.

Algebra A.

1. Reduce the equation
$$\frac{\sqrt[4]{1-x}}{\sqrt{2-x}} = \frac{\sqrt{2-x}}{\sqrt{4+x}}$$

2. Simplify
$$\frac{\sqrt{\frac{(\frac{2}{3})^{\frac{1}{24}} \times \sqrt[3]{4}}{|\frac{1}{8^{-1}} \times \sqrt[4]{27^{-1}}}}}{\sqrt{\frac{1}{8^{-1}} \times \sqrt[4]{27^{-1}}}}.$$

- 3. Find the square root of $bc-|-2b|\sqrt{bc-b^2}$.
- 4. Multiply $\sqrt{-3}$ -1- $\sqrt{5}$ by $\sqrt{-5}$ -1- $\sqrt{-7}$.

Reduce the following equations:-

5.
$$x^3 - x^{\frac{3}{2}} = 56$$
.

6.
$$(x-|-5)^{\frac{1}{2}} - (x-|-5)^{\frac{1}{4}} = 6.$$

Find the values of x and y in

7.
$$\begin{cases} x^2 - |-xy| = 12 \\ xy - |-y|^2 = 24 \end{cases}$$
.

8.
$$\begin{cases} xy + y^2 = 126 \\ 5y - 2x = 0 \end{cases}$$
.

- Expand (½x³-4y²)⁷.
- 10. A started from C toward D, and traveled at the rate of 10 miles an hour. When he was 9 miles from C, B started from D toward C and went every hour one-twentieth of the distance from D to C. When B had traveled as many hours as he went miles in an hour, he met A. Find the distance from C to D.

ROCHESTER FREE ACADEMY. EXAMINATION PAPERS. CHEMISTRY. June, 1878.

CHEMISTRY

- 1. What distinction do you make between organic and inorganic chemistry?
- 2. How does chemical affinity differ from cohesive attraction?
 - 3. How does an atom differ from a molecule?
 - 4. What is meant by the atomic weight of an element?
- 5. How is the molecular weight of a compound determined?
- 6. Write the names of the compounds whose symbols are KI. and \mathbf{Na} Cl.
 - 7. Indicate by their names that N₂O. differs from N₂O₂. 8-9. Of what elements do the hydracids and of what do
- the oxacids consist?

 10-11. From the following named acids select 1st, the
- oxacids and 2d, the hydracids: sulphuric, hydro-sulphuric, chlorous and hydro-chloric acids.
- 12. State in what manner their names indicated the classes to which they belonged.
- 13-16. Name the acids having the following symbols: HClO., HClO., HClO., HClO., and HClO.
- 17. What metal and what acid are concerned in the formation of the salt, sodium sulphate?
 - 18. And what in the formation of sodium sulphite?
- 19. If zinc and hydrochloric acid are placed together what element will escape?
- 20. Write the names of the binary compound that is formed in the above reaction.
- 21. Indicate by symbols the removal of water from sulphuric acid (H₂SO₄.).

- 22. Write the name and symbol of the compound which remains.
- 23. Why are the oxacids the only ones which can form acid anhydrides?
- 24-27. Four jars are filled with oxygen, nitrogen, hydrogen and carbonic dioxide: state the respective tests by which each gas could be recognized.
- 28. If the air were all oxygen, what substances would escape combustion?
 - 29. Of what use is the CO2. of the air?
- 30. For what purpose is Davy's safety lamp used and on what principle does it work?

PROBLEMS.

TABLE OF ATOMIC WEIGHTS.

Carbon 12, Chlorine 35.5,

Nitrogen 14, Oxygen 16, Potassium 39, Sodium 23, Sulphur 32.

- 1. Twenty cubic feet of oxygen will support the combustion of how many cubic feet of hydrogen?
- 2. In order to obtain 15 cubic feet of nitrogen for experimental purposes, how many cubic feet of air will be required?
- 3. What would be the weight of the CO₂ formed by the combustion of 3 tons of charcoal?
- 4. What is the weight of the hydrogen, which if burned, would produce a ton of water?
- 5. How much oxygen can be obtained from one pound of potassinm chlorate (KClO₂.)
- 6. What would be the name and weight of the compound remaining?
- 7. In 58.5 pounds of table salt (NaCl); how many pounds of the metal sodium?
- 8. What must be the weight of a diamond, which on being burned, would form 132 grains of CO₂?
- 9. From 98 pounds of sulphuric acid H₂SO₄: how many pounds of water must be removed to convert it into sulphuric anhydride (SO₃)?
- 10. In 146 pounds of hydrochloric acid how many pounds of each constituent?

ROCHESTER FREE ACADEMY.

EXAMINATION PAPERS.

Composition and Reading.

June, 1878.

Composition and Reading.

- 1. Define Figures of Rhetoric.
- 2. Define Synecdoche.
- 3. What is the difference between Metaphor and Metonymy?
- 4. Define Irony.
- 5. Define Paralipsis.
- 6. Define Paradox.
- Define Vision.
- 8. Define Onomatopoeia.
- 9. Give the general rules for the use of figures.
- 10. Mention the figures occurring in the following sentences:
 - a) Slowly from the scene The stooping sun upgathers his spent shafts, And puts them back into his golden quiver.
 - b) It came o'er my ear like the sweet sound That breathes upon a bank of violets.
 - Presence of mind is greatly promoted by absence of body.
 - flowers are stars, wherein wondrous truths are made manifest.
 - θ) Ye are our epistle written in our hearts, known and read of all men.
 - f) Hurrah! the land is safe, is safe!
 - g) Ye devour widows' houses.
 - h) Who shall separate us from the love of Christ? shall tribulation, or distress, or persecution, or famine, or nakedness, or peril?

- i) Fifty good lances rode with him.
- k) The colt will be three years old next grass.
- 11. Mention any error in the use of figures, occurring in any one of the following sentences:
 - a) I bridle in my struggling muse with pain, That longs to launch into a bolder strain.
 - Boyle was the father of Chemistry, and brother to the Earl of Cork.
 - c) She was covered with the light of beauty; but her heart was the bearer of pride.
 - d) Those whose minds are dull and heavy do not easily penetrate into the folds and intricacies of an affair, and therefore can only scum off what they find at the top.
 - e) The shot of the enemy mowed down our ranks with frightful rapidity. On every side men and horses lay, like scattered wrecks on a storm - beaten shore.
- 12. Arrange the parts in the form of a climax: When virtuous actions are practised they become easy; and when they are done frequently, they are confirmed by habit; and confirmed habit is a kind of second nature; and when they afford pleasure, they are done frequently; and when they become easy, they afford pleasure.
- 13. Select some character from the play of the Merchant of Venice, and write a sketch of it.
- 14. What is verse?
- 15. Name and define the kinds of poetic feet.
- 16. What is heroic verse, and why is it so called?
- Define single rhymes, double rhymes, triple rhymes, and give an example of each.
- 18. Name the cases in which poetic licenses are allowed.
- 19. Scan the following lines, and name the measure of each:
 - a) Hasten, Lord, to rescue me, and set me safe from trouble.
 - b) Virtue's bright'ning ray shall beam forever.

- c) At the close of the day, when the hamlet is still.
- d) Even harmony struck from the noise of the dishes.
- e) Faded the vapors that seemed to encompass him.
- f) In the time of my childhood 't was like a sweet dream.
- g) One more unfortunate.
- h) From Greenland's icy mountains.
- i) 'Tis the place, and all around it, as of old, the curlews call.
- k) The village preacher's modest mansion rose.
- 20. Write a stanza of iambic verse with the following rhymes: cold, old, gray, day.

ROCHESTER FREE ACADEMY.

EXAMINATION PAPERS.

Modern History .--- Europe.

June, 1878.

Modern History. Europe.

- 1. What centuries are included in modern history?
- 2. What changes of empire, of commerce, and of religion heralded the modern ages?
- 3. Give the circumstances attending each-
 - The downfall of what empire.
 - The influences that transferred commerce.
 - The Reformation.
- 4. What states embraced the reformed faith? How did the name Protestant arise?
- At the beginning of the Reformation who was emperor of Germany? Give the extent of his dominions.
- 6. What wars resulted from this departure in religion?
- 7. Describe the attack made on the Netherlands. Who defended them?
- 8. Give the date of accession of the Tudors to the English throne.
- Give the names of these sovereigns.
- 10. What notable figure appears in the reign of Henry VIII.? How did he lose the favor of the king? What was his fate?
- Speak of the events that caused the separation of the English church from the Romish.
- 12. How did the English incur the hostility of Spain in the sixteenth century? What method was taken by Philip II. to subjugate England?

- 13. Name the great authors of this age.
- 14. How was James I. connected to the preceding royal line?
- 15. What Stuarts succeeded to the English throne? What was their fatal error? Who lost his life in consequence?
- 16. What was the basis of the commonwealth? Who its head? How long did it last? Who was its distinguished secretary?
- 17. When did Louis XIV. reign in France? What great minister controlled affairs of state? Name the wars of his reign.
- 18. What is the present royal House of England called?

 Name the sovereigns of this House. Whose reign has been the longest and the most fruitful in events?
- 19. When did the American colonies revolt? For what immediate cause?
- 20. When did England secure possession in India? What famous name is associated with this affair? To what Great Commoner did England owe her rise in politics?
- 21. In what year, and under what generals, did England wage war with her subjects in India?
- 22. What king of England was contemporary with the French revolution? What occurred in America in 1774?
- 23. At whose door can this fearful disaster be laid?

Speak of this Reign of Terror, including:

- a) The different factions.
- b) What king was sacrificed?
- c) What three forms of government attempted?
- d) Names of prominent leaders.
- e) What deliverer appeared in the form of a military officer?
- 24. Follow Napoleon I, in his conquests and defeats. Describe Waterloo.
- 25. Who was Napoleon III.? Who were his successors? What is the present political situation of France? What was secured to Germany in the last war with France?

ROCHESTER FREE ACADEMY.

EXAMINATION PAPERS.

BOTANY

June, 1878.

BOTANY

T.

- 1-2. State the functions of a plant's two kinds of organs.
- 3. Name the digestive and respiratory organs of a plant.
- 4-5. Give brief descriptions of the manner of the performance of digestion and respiration.
 - 6 Why have parasitic plants no need of leaves?
- 7. Name the protecting and the essential organs of a flower.
 - 8. How may a perfect flower be incomplete?
 - 9. What organs of a flower produce the pollen?
 - 10. State the function of the pollen.
- 11. What provision does nature make for the nourishment of the embryo in the seed, at the commencement of its growth?
 - 12. Why is the radicle improperly named?
 - 13. Give a complete description of the life of a biennial?
- 14. How do we know that the common potato is not a root, but a stem?
 - 15. How does a netted veined, differ from a nerved, leaf?

II.

- 1. Describe No. 1 specimen in regard to kind, venation, form and margin.
 - Similarly describe No. 2.

- 3. State which of the above specimens belongs to the exogens and which to the endogens.
- 4. And tell what can be told in regard to the seeds which produced them.
- 5-6. Describe specimens Nos. 3 and 4 in regard to kind, venation and the character of the stem on which they grew.
 - 7. Is No. 5 an exogen or an endogen?
 - 8. Give the reason for your answer.
 - 9. State its age in years and tell how it is determined.
 - 10. To which class of plants does No. 6 belong?
 - 11. Give two reasons for your answer.
- 12. What kind of leaves has it in regard to venation, and how are they arranged on the stem?
 - 13. Name the parts of the seed before you.
 - 14. State the function of each part.
- 15. Would the stem growing from it be an endogen or an exogen, and would the leaves be reticulated or nerved?
- 16. How may you determine the venation of a leaf from the seeds?
- 17. What reason have we for believing that flowers are modified branches?
 - 18. From what part of the plant is the fruit developed?
- 19. What relation does the vegetable sustain to the mineral and animal kingdoms.
- 20. In what respect is the animal kingdom of advantage to the vegetable?
 - 21. What is a species in botany?
 - 22. Of what does the scientific name of a plant consist?
- 23. What are the two series into which plants have been classified?
- 24. Draw a diagram illustrating the arrangement of the vegetable material in the stem of an exogen.
- 25. In what respect is the vegetable kingdom dependent upon the actinic element of the sun light?

ROCHESTER FREE ACADEMY.

EXAMINATION PAPERS.

POLITICAL ECONOMY

June, 1878.

POLITICAL ECONOMY

- 1. Of what does Political Economy treat?
- 2. What were the causes of the late growth of the science?
- 3. Define value.
- 4. How is the value of an article determined.
- 5. What confers value upon an article?
- 6. Define price.
- 7. Define capital.
- 8. Into what classes is capital divided?
- 9. Explain the nature of each.
- 10. Explain the relation of capital to labor.
- 11. What is meant by demand?
- 12. What is meant by supply?
- 13. State and illustrate the first law of demand supply?
- 14. State and illustrate the second law.
- 15. What is meant by division of labor?
- 16. What has led to such a division?
- 17. What are the advantages of such a division?
- 18. What are the disadvantages?
- 19. What conditions, aside from the law of supply and demand, affect the rates of wages?
 - 20. What is a strike?
 - 21. Why do strikes usually fail?

- 22. What is the best way to adjust difficulties between employers and employees? Explain the method.
 - 23. What are the functions of money?
- 24. What determines the amount of money needed in a civilized country?
- 25. Why have gold and silver been adopted by most civilized countries as money?
 - 26. What are some of the substitutes for money?
 - 27. What has led to their use?
 - 28. What is an inconvertible paper currency?
 - 29. What is a convertible paper currency?
 - 30. Explain the origin of property in land?
 - 31. What is Ricardo's theory of rent?
 - 32. What is a revenue tariff?
 - 33. What is a protective tariff?
 - 34. What are the advantages of the latter?
 - 35. What are the disadvantages?

Rochester Free Academy.

EXAMINATION PAPERS.

NATURAL PHILOSOPHY.

April, 1878.

NATURAL PHILOSOPHY.

- 1. What is sound?
- 2. What is the difference between a musical sound and a noise?
 - 3. How is an echo produced?
 - 4. When do we say a body is cold to the touch?
 - 5. How does sensible differ from latent heat?
- 6. Name the three ways by which heat may be communicated.
- 7. When radiant heat falls upon the surface of a body, what are the three ways in which it may be disposed of?
 - 8. How does heat affect the volume of bodies?
- 9-11. How are the following thermometers graduated? Fahrenheit, Reaumur and Centigrade.
- 12. In order that one liquid may be separated from another by the process of distillation, what is essential?
- 13. What is the essential difference between the high and the low pressure steam engine?
 - 14. What is dew?
- 15. Why is dew not formed abundantly on a cloudy night?
 - 16. What is the cause of the wind?
- 17. State and illustrate the law for the reflection of light.
- 18. When light passes obliquely from a rarer into a denser medium, how is it refracted? Illustrate your answer.

- 19. Name and illustrate the six simple lenses.
- 20. Which may be used as magnifying glasses?
- 21. An analysis of the sunlight resolves it into what colors?
- 22. What simple colors, when united, form orange, green and violet?
- 23. Name the complementary color of orange, of green and of violet.
- 24. What is the general law of electrical attraction and repulsion?
- 25. When a body charged with positive electricity is brought near to one non-electrified, how is the latter affected?
 - 26. If we break an artificial bar magnet, what occurs?
- 27. During what period of time will an electro-magnet retain its magnetism?
- 28. Why does the magnetic needle point north and south?

PROBLEMS.

- 1. How long after a sudden shout will an echo be returned from a high wall 1.120 feet distant?
- 2. The flash of a cannon was seen, and in six seconds afterward the report was heard; how far off was the cannon?
- 3. A certain musical string vibrates 280 times in a second; how many times must it vibrate in a second to produce the octave above?
- 4. Two persons are reading by the light of a lamp; one at a distance of 2 feet, the other at a distance of 4 feet; how much more light does one receive than the other?
- 5. A person hears a sound in the open air at a distance of one mile; how far must be move away that it may be only # as loud?

HONORARY.

- 1. What peculiarities of expansion does water exhibit?
- 2. Why do clouds float in the atmosphere?

- 3. Why does not a green object, which is illuminated by the white sunlight, appear white?
- 4. If a certain musical string vibrates 300 times in one second when stretched with a force of 150 pounds, how many times will it vibrate in one second when stretched with a force of 600 pounds?
- 5. If a magnet attracts a piece of soft iron at a distance of $\frac{1}{10}$ of an inch with a force of one ounce, with what force will it attract at a distance of $\frac{1}{10}$ of an inch?

Rochester Free Academy.

EXAMINATION PAPERS.

GEOLOGY

April, 1878.

GEOLOGY.

- 1. State the origin of the earth according to the nebular hypothesis.
 - 2. Why did the earth assume a globular form?
- 3. Why was the water of the earth once in the condition of vapor?
 - 4. Define geology.
- 5. What is believed to be the thickness of the earth's crust? What is the principal reason for this belief?
 - 6. How have the igneous rocks been formed?
 - 7. Why are stratafied rocks often called sedimentary?
- 8. Why is the mass of igneous rocks necessarily older than the stratafied?
 - 9-10. Define a fossil; a petrifaction.
 - 11. What are metamorphic rocks?
 - 12. What is an ore?
- 13. State the characteristic properties of the mineral quartz.
 - 14. Name four silicates.
- 15. Name the three free conditions in which carbon exists in nature.
- 16-20. How have the following kinds of rocks been formed? Limestone, sandstone, conglomerate, shale.
 - 21. What is the composition of granite?
 - 22. How does gneiss differ from granite?
 - 23. Describe the formation of marble.

- 24. What is coral?
- 25. In what way do winds perform geological work?
- 26-27. Give a description of the geological work performed by ice, while in a state of rest and when in motion.
- 28. What reason have we for believing that this region has once been passed over by a glacier?
- 29. How may the direction in which it moved be determined?
 - 30. Describe the making of mountain chains.
- 31. At what period in the formation of the earth's crust did historical geology begin?
- 32. Define the following terms: Archæan, paleozoic, mesozoic and cenozoic time.
 - 33. Name the five sub-kingdoms of animal life.
- 34. What was the position and form of North America at the close of archæan time?
 - 35. For what is the Devonian age noted ?
- 36. Describe the manner in which mineral coal was formed.
- 37. What was characteristic of the brute mammals of the early part of the quaternary age?
 - 38. Describe man's mode of life during the stone age.
- 39. How did man of this age compare physically with man of the present age?
- 40. In what respect may iron be said to be "the symbol of civilization?"

Rochester Free Academy.

EXAMINATION PAPERS.

COMPOSITION

April, 1878.

Composition.

FIRST YEAR.

- 1. Define a subject, a predicate, a proposition, a phrase, a clause, a sentence.
 - 2. What are the principal words of language?
- 3. Name the different kinds of composition; and give an illustration of each kind.
 - 4. Change the following into simple, natural English:
 - A vast concourse of citizens assembled to behold the spectacle.
 - 2. The conflagration extended its devasting career.
 - Mary was the possessor of a diminutive specimen of the sheep species.
 - She regrets that the multiplicity of her engagements precludes her from accepting your polite invitation.
 - Ladies take pleasure in the expensive commodities imported from distant communities.
 - 6. Your uncle was evidently laboring under some hallucination.
 - However, the edifice was totally consumed, notwithstanding the efforts of those noble men, who, on such occasions, rush to the call of duty.
 - The poem possesses not sufficient vitality to preserve it from putrefaction.
 - 9. There are some youthful personages whom it always delights you to accompany.
 - I presume he will reciprocate the favor.

- 5. What is the difference, in meaning, between the following sentences?
 - The sick and the wounded were left at the hospital.
 - 2. The sick and wounded were left at the hospital.
- 6. Place the proper indefinite article before each of the following words and phrases:
 - Inch, university, hero, heathen, historian, heroic action, union, article, humble cottage, hundred.
- Name the adjective modifiers in the following passage:
 - Not worse furnished for observation, than for attack or defence, it has several eyes, large, transparent, and covered with a horny substance, which, however, does not impede light.
- 8. What words have nearly the same meaning as think? brave? danger? beautiful? useful?
- 9. What word is opposite in meaning to yood? life? friend? joy? freeze? pain? rich? right? rough? gay?
- 10. Write out a simple explanation of each of the following proverbs:
 - 1. Jack of all trades, master of none.
 - 2. Strike while the iron is hot.
 - 3. All is not gold that glitters.
 - 4. Many cooks spoil the broth.
 - 5. The rats desert a sinking ship.
 - 6. Where ignorance is bliss, 'tis folly to be wise.
 - 7. It is always darkest before the dawn.
 - 8. Hand of iron in a glove of velvet.
 - 9. A bird in the hand is worth two in the bush.
 - 10. There is many a slip 'twixt the cup and the lip.
 - Give the rules for the use of the dash.
- 12. Make sentences, each of which shall illustrate one of these rules.
 - 13. Give the rules for the use of the colon.
 - 14. Illustrate each of these rules by a sentence.

- 15. Give three of the rules for the comma; and illustrate, by a sentence, each of the rules given.
 - 16. Punctuate the following sentences:
 - Reading maketh a full man conference a ready man writing an exact man
 - Some one has said what an argument for prayer is contained in the words Our Father which art in heaven
 - 3. He reported the death of John Chapman M D
 - 4. Down soothless insulter I trust not the tale
 - Kant said Give me matter and I will build the world.
 - O Rome my country city of the soul
 The orphans of the heart must turn to thee
 Lone mother of dead empires
 - 7. Roll on thou deep and dark blue Ocean roll
 - 8. The following dialogue ensued You graceless whelp what have you got there devouring
 - 9. Religion who can doubt it is the noblest theme for the exercise of the intellect
 - Truth is fair and artless simple and sincere uniform and consistent.
- 17. Write an exercise of, at least, one hundred words, on the subject of Amusements; punctuating carefully.

Rochester Free Academy.

EXAMINATION PAPERS.

GEOMETRY--B.

April, 1878.

Gеометку--В.

T

- (a). How will you find the centre of a given circle?
- (b). How will you construct a square that will be equivalent to the difference of two given squares?
 - (c). How will you inscribe a regular hexagon in a circle?

II.

- (a). Prove that circumferences of circles are to one another as their radii; and their areas are to one another as the squares of their radii.
 - (b). Solve the following problems:

Two parallel chords in a circle were measured and found to be 8 feet each, and their distance asunder was 6 feet; what was the length of the radius?

(c). The diameter of a circle is 4; what is the area of the inscribed equilateral triangle?

III.

- (a). What will determine the position of a plane?
- (b). If a straight line stand at right angles to each of two other straight lines at their point of intersection, prove that this line will be at right angles to the planes of those lines.
- (c). If two planes are perpendicular to the same straight line, prove that they are parallel to each other.

IV.

(a). Of what class of Geometrical magnitudes does the seventh book treat?

- (b). Define a prism, a pyramid, a cylinder, a cone, a sphere.
- (c). What is a spherical sector? a spherical segment? What is a small circle of a sphere? a great circle?
 - (d). What is a tangent plane to a sphere? a secant plane?

v.

(a). What is the measure of the volume of a prism? of a pyramid?

What is the measure of the convex surface of a right prism? of a right pyramid?

- (b). Two parallelopipedons, the one rectangular and the other oblique, will be equal in volume when, having the same base and altitude, two opposite lateral faces of the one are in the planes of the corresponding lateral faces of the other.
- (c). Any triangular pyramid is one-third of the triangular prism having the same base and an equal altitude.

Rochester Free Academy.

EXAMINATION PAPERS.

GEOMETRY -- A.

April, 1878.

GEOMETRY, A.

- 1. Construct a square that shall be equivalent to the difference of two given squares.
- 2. Inscribe a regular pentagon in a circle, and give a brief explanation of your work.
- 3. Two pentagons are similar; two homologous sides are 4 and 5, the area of the smaller is 1,600 feet; what is the area of the larger?
- 4. The radius of a circle is 3; how do you find the circumference? The area?
- 5. The area of a circle is 15; how do you find the radius? The circumference?
- 6 Given, the chord of any arc, to find the chord of onehalf that arc, the radius of the circle being unity.
- 7. Suppose a line to be drawn in any direction between two parallels. Bisect the two interior angles thus formed on either side of the connecting line, and prove that the bisecting lines meet each other at right angles, and that they are the sides of a right-angled triangle of which the line connecting the parallels is the hypothenuse.
- 8. The base of an isosceles triangle is 12, and the equal sides are 20 each. What is the length of the perpendicular from the vertex to the base; and what the area of the triangle?
- 9. Define a plane. When are a straight line and a plane parallel? Also two planes?
- 10. When is a straight line perpendicular to a plane? Prove how two straight lines are divided when cut by three parallel planes.
- 11. Prove that the sum of the plane angles forming any solid angle is always less than four right angles.

- Define a Polyhedron, a Prism, a Parallelopipedon.
- 13. What is a Zone of a Sphere? A Spherical Sector? A Spherical Segment? Illustrate by figures.
- 14. By the revolution of what body about one of its sides as an axis is a cylinder generated?
- 15. What is the relation of similar polygons to each other? What, of similar polyhedrons?
- 16. The altitude of a quadrangular right pyramid is 6, and the base is a square of which each side is 3; what is the volume of the pyramid?
- 17 and 18. The volume of the frustrum of a pyramid is equivalent to the sum of the volumes of three pyramids, one of which &c. State, and prove in the case of a triangular pyramid.
- 19. What is the convex surface of a pentangular right prism. each side of the base being 10, and the altitude 8?
- 20. What is the convex surface of the frustrum of a cone, the radii of whose bases are 5 and 4, respectively, and the slant height 10? What is the entire surface?

Correct answers to any or all of the following questions will be accepted in lieu of the same number of answers to the preceding questions.

- 1. The bases of the frustrum of a pyramid are squares; a side of the lower base is 8 feet, and of the upper base 6 feet; the altitude of the frustrum is 15 feet; find the volume.
- 2. In the pyramid described in the sixteenth question, what is the area of a section made by a plane parallel to the base, cutting the pyramid midway between the vertex and base?
- 3. The bases of the frustrum of a pyramid are regular hexagons; a side of the lower base is 12 feet, and of the upper base 6 feet, and the altitude 30 feet. What is the volume?

Rochester Free Academy.

EXAMINATION PAPERS.

ALGEBRA.

April, 1878.

ALGEBRA.

- 1. A man driving a flock of sheep to market was met by a party of soldiers who plundered him of $\frac{1}{3}$ of his flock and 6 more. Afterward he met another company who took $\frac{1}{2}$ of what he then had and 10 more; he then had but 2 left. How many had he at first?
- 2. A certain article of consumption is subject to a duty of 72 cents per cwt.; in consequence of a reduction in duty, the consumption increases one-half, but the revenue falls one-third. Find the duty per cwt. after reduction
- 3. A railway train, after traveling for one hour meets with an accident which delays it one hour, after which it proceeds at three-fifths of its former rate, and arrives at its terminus three hours behind time; had the accident occurred 50 miles further on, the train would have arrived 1 hour and 20 minutes sooner. Find the length of the line and the original rate of the train.
 - 4. From what causes does a negative result arise?
- 5. When the solution of a problem has given a negative result, how may we form an analogous problem which shall lead to the corresponding positive result?
- 6. If we subtract an inequality from an equation, in what sense does the resulting inequality subsist? Why so?
- 7 and 8. Give the value of each of the following expressions: $\frac{\alpha}{\Omega}$, $\frac{\alpha}{\infty}$, $0 \times \infty$.

Give the principle by which the value of the last is determined.

- 9. Distinguish between the exponent of the quantity and the exponent of the power.
 - 10. Find the 4th power of $(-a)^2 (-b)^3 (-c)^4$.
- 11-13. Prove that $a^{\frac{1}{n}} \times b^{\frac{1}{n}} = (ab)^{\frac{1}{n}}$. Prove that $\sqrt[n]{\sqrt[n]{a}} = \sqrt[n]{a}$. Find the value of a^{-2} .
 - 14. Reduce to its simplest form $\left(\frac{a^{-1}b^{-2}}{x}\right)^{\frac{1}{2}}$
- 15. Find the sum of $V \frac{a^2(a-b)}{a+b}$, $V \frac{b^2(a+b)}{a-b}$ and $a^2-3b^2 V \frac{1}{a^2-b^2}$
- 16. Add $\sqrt[3]{1.4a^{m-1-6}b^3}$, $\sqrt[3]{16a^{m-3}b^6}$. $\sqrt[3]{2a^{4m-1-9}}$ and $\sqrt[3]{2c^2a^m}$.
 - 17. Multiply $a^{\frac{1}{2}} + b^{\frac{1}{2}} + a^{-\frac{1}{2}}b$ by $ab^{-\frac{1}{2}} a^{\frac{1}{2}}$
 - 18. Find the 3d power of $3 + \sqrt{5}$.
 - 19. Divide $\frac{1}{2}\sqrt{\frac{1}{2}}$ by $\sqrt{2} + 3\sqrt{\frac{1}{2}}$.
 - 20-23. Simplify each of the following expressions:

$$\sqrt[3]{\frac{a}{3} \frac{Va}{3}}, \frac{b}{a\sqrt[3]{b^2}}, (x^{-m^2})^{m^{-3}}$$

- 23. What multiplier will rationalize the denominator of $\frac{1}{2\sqrt{a^2}}$?
 - 24. Rationalize the denominator of

$$\frac{(x^2-|-x-|-1)^{\frac{1}{2}}-(x^2-|-x-|)^{\frac{1}{2}}}{(x^2-|-x-|-1)^{\frac{1}{2}}-|-(x^2-|-x-|)^{\frac{1}{2}}}$$

HONORARY.

- 1. A and B run a mile. First, A gives B a start of 44 yards, and beats him by 51 seconds; at the second heat A gives B a start of 1 minute and 15 seconds, and is beaten by 88 yards. In what time can each run a mile?
- 2. If $a^b = b^a$, show that $\left(\frac{a}{b}\right)^{ab} = a^{b-1}$; and if a = 2b, show that b = 2.
 - 3. Extract the square root of $\frac{y^2}{x} + \frac{x^9}{4y} + \frac{2y^{\frac{3}{2}} x^{\frac{3}{2}}}{(xy)^{\frac{3}{4}}}$.
 - 4. Simplify $V_{\frac{(\frac{1}{2})^3 |-|V_{3\frac{1}{2}}|}{2|V|_2(\frac{3}{4})^{\frac{1}{4}}}}$
 - 5. Find the sum of $a \left(1 \frac{b^{\frac{2}{3}}}{a^{\frac{2}{3}}}\right)^{\frac{1}{2}}$ and $b \left(1 \frac{a^{\frac{2}{3}}}{b^{\frac{2}{3}}}\right)^{\frac{1}{2}}$
- 0. A man starts p hours before a coach, and both travel uniformly; the latter passes the former after a certain number of hours. From this point the coach increases its speed to six-fifths of its former rate, while the man increases his to five-fourths of his former rate, and they continue at these increased rates for q hours longer than it took the coach to overtake the man. They are then 92 miles apart; but had they continued for the same length of time at their original rates, they would have been only 80 miles apart. Show that the original rate of the coach is twice that of the man. Also, if $p \rightarrow q = 16$, show that the original rate of the coach was 10 miles per hour.

EXAMINATION PAPERS.

MENTAL PHILOSOPHY.

Mental Philosophy.

- I. Name the three leading divisions in which the mind presents itself to our notice, and the corresponding states of mind resulting from their action.
- II. To what extent are we indebted to the senses for our knowledge?
 - III. What can you say of sensation? Of perception?
- IV. What three things are involved in the process of perception?
- V. Distinction between original and acquired perceptions. Illustrate.
- VI What are conceptions? How do they differ from sensations and perceptions? How from remembrances? Illustrate.
- VII. How are the effects produced on the mind by exhibitions of fictitious distress explained?
- VIII. What is abstraction? Define particular abstract ideas and general abstract ideas. Illustrate.
- IX. What three distinct notions does every instance of consciousness embrace?
- X. Seven classes of relations. Primary and secondary laws of association.

- XI. What is memory? Distinction between circumstantial and philosophic memory.
- XII. In what does our chief power in quickening and strengthening the memory consist? What is intentional recollection?
- XIII. What can you say of accumulated arguments in demonstration? What in moral reasoning? Illustrate.
- XIV. What is analogical reasoning? What is inductive reasoning?
- XV. What is imagination? Is it a simple, or a complex operation of the mind? Why?

EXAMINATION PAPERS.

Physiology and Hygiene.

Physiology and Hygiene.

- 1. At what period of life may deformities of the bones be most easily acquired? Why?
- 2. Why are the bones of old persons more easily broken than those of the young?
- 3. What is the difference between an extensor and a flexor muscle?
 - 4. What constitutes food?
- 5. Why are carbonate and phosphate of lime valuable as articles of food?
- 6. From the following list select the albuminous articles of food: starch, albumen, sugar, caseine, fat, gluten.
- 7. What is the adipose tissue, and of what use is it in the human body?
 - 8. Why is milk so valuable as an article of food?
 - 9. What is the function of the gastric juice?
- 10. Name the ingredients of the food digested in the small intestine.
 - 11. What is the function of the pancreatic juice?
- 12. Of what use are the valvulæ conniventes of the small intestine?
- 13. What does the blood of the portal vein contain during the digestion of the food?
 - 14. What are the two functions of the liver?
 - 15. Of what use is the albumen of the blood?
 - 6. What is the distinguishing peculiarity of fibrine?
- 17. What is the rule for applying a tourniquet when an artery is wounded?

- 18. Name the two acts of respiration: state which is active and which is passive.
- 19. What becomes of the oxygen which disappears in the lungs in breathing?
 - 20. What is the function of the blood globules ?
- 21. Why will not a candle burn in air which has been once breathed?
- 22. Why are close stoves, hot water or steam pipes bad means for warming and ventilating an apartment?
- 23. Name and locate the organs of the circulation of the blood.
- 24. Whence does the right auricle of the heart receive its blood?
- 25. Why does venous blood flow through the pulmonary artery?
- 26. How does the movement of the blood in the arteries differ from that in the veins?
- 27. How is the animal heat disseminated and equalized throughout the body?
 - 28. How is the internal heat of the body regulated?
- 29. From what source are the watery and mineral ingredients of a secretion supplied?
- 30. What is the most abundant and important of all excretions, and by what organs is it discharged?
- 31. By what system is the harmonious action of the organs of the body secured?
 - 32. What is a nerve?
 - 33. What is the function of a nervous filament?
- 34. What part of the nervous system is the seat of injury or disease when the lower half of the body is paralyzed?
 - 35. What part when one side of the body is paralyzed?
 - 36. Give the reason for your last answer.
- 37. What is the principal function of the fifth pair of cranial nerves?
 - 38. How is the sound of the human voice produced?

- 39. Name the part of the brain which is the organ of the mind.
- 40. Name the three most important of the mental faculties.
- 41. When does a nervous impression become a conscious sensation?
- 42. Is the action of the sympathetic system of nerves voluntary or involuntary?
 - 43. Name the special senses.
 - 44. What is the exact form of the eyeball?
- 45. How does the cornea differ from the selerotic coat of the eye?
 - 46. Of what use is the crystalline lens?
 - 47. To what kind of impressions is the retina sensitive?
- 48. What is the best kind of artificial light by which to read or study?
 - 49. How do sonorous vibrations reach the internal ear?
- 50. What portion of the human ear illustrates the fundamental principle of the telephone?

EXAMINATION PAPERS.

English Literature.

ENGLISH LITERATURE.

T

What peoples have successively held sway in Britain or England?

Which of these formed the basis of the English race? To what continental people of the present time is the English race most nearly related?

TT.

Give a synopsis of the writers of the 14th century. Of the 15th century.

Also one of the writers of the Elizabethan age.

Ш

Give an account of the origin of the English drama, and of its development into its present form.

IV.

Give a sketch of the life of Shakespeare.

Name five of his contemporaries.

How many plays are usually ascribed to Shakespeare?

Into what classes are they divided by your author?

Upon what basis is the division made?

How do you account for the differences in the various texts of the plays?

Is there any question raised in regard to the authorship of Shakespeare's plays?

Upon what grounds?

To whom else are they ascribed?

V.

Into what periods is the literary career of Milton divided? Name the productions belonging to each period.

Give a general outline of the plan of the Paradise Lost.

What was the poem originally intended to be?

Is the plan of the poem supposed to have been suggested by another poem?

If so, what poem?

What is the verse of Paradise Lost?

Does Milton use rhyme in the poems of the first period? In those of the last?

What change of opinion did he undergo in regard to the use of rhyme?

VI.

Name the poets of the artificial school.

Of the Romantic school.

What are some of the characteristics in style and in choice of subjects of the two schools?

In what century and by what writers was periodical literature developed?

Who was the first English writer that received any large income from the sale of his productions?

How, previous to his time, had authors been supported?

EXAMINATION PAPERS.

PERSPECTIVE DRAWING.

PERSPECTIVE DRAWING.

- 1. Define perspective drawing.
- 2-6. Define the following terms used in perspective drawing: The horizontal line; point of sight; station point; line of direction; picture line.
 - 7. What are vanishing points?
 - 8. Of what use are measuring points?
 - 9. What constitutes the field of vision?
- 10. All lines perpendicular to the picture plane have their vanishing point where?

PROBLEMS.

The scale to be used in the solution of the problems is one-half inch to the foot.

- 1. Draw the horizontal line of perspective drawing across your paper, and in its center place the point of sight. Draw the line of direction six feet in length, and locate the the picture line two feet below the horizontal line.
- 2. Locate the vanishing point, and find the measuring points on the H. L. for parallel perspective.
- 3. Represent the perspective appearance of a straight line 1½ feet in length, 2 feet to the left of the L of D, resting on the ground plan, against and perpendicular to the picture plane.
- 4. Represent the perspective appearance of a vertical line 4 feet in length, 2 feet to the right of the L. of D., and 2 feet behind the picture plane.

- 5. Reconstruct the preliminary work of the above, with the picture line three feet below the H. L. On the ground, 1 foot to the left of the L. of D, and resting against the picture plane, draw a square in perspective drawing, 2 feet on each side.
- 6. At an equal distance to the right of the L. of D., draw a similar square, and on it construct a perspective cube.
- 7. Reconstruct the work of the 5th problem, and on the square, as a base, construct a column 6 feet in height.
- 8. On the right of the L. of D. draw a square the same as in problem 6; on this square, as a base, construct a pyramid 6 feet in height.
- 9-10. Draw a horizontal line across your paper, in the middle of which place the C. of V., and draw the line of direction 6 feet in length. Locate the picture line 2 feet below the H. L. Find the vanishing points of horizontal lines forming angles of 45° with the picture plane, to the right and the left of the L. of D. Find their respective measuring points.
- 11. On the ground plane, directly opposite the eye of the observer, draw a perspective square measuring 2 feet on each side, the sides forming angles of 45° with the picture plane.
- 12. Reconstruct the work of problem 11th, and on the square construct a cube.
- 13. Reconstruct the preliminary work of problem 11th, and 3 feet to the left of the L of D draw a square measuring 2 feet on each side, resting on the ground against the picture plane, and the sides forming angles of 45° with the picture plane; on this square, as a base, construct a column 5 feet high.
- 14. At an equal distance to the right of the L. of D. draw a square of equal size, and on this square, as a base, construct a pyramid 5 feet high.
- 16. State which of the above problems are in parallel and which are in angular perspective.

EXAMINATION PAPERS.

History of the Middle Ages.

History of the Middle Ages.

- 1. What was the general character of the first six centuries of this period of history?
 - 2. What empire escaped the ravages of the barbarians?
- 3. Name three successive conquests of Italy, in the fifth and the sixth centuries, and their duration?
- 4. Name five Germanic tribes that laid the foundation of modern nations.
 - 5. Relate the history of Justinian.
- 6. Describe the formation of modern European languages.
- 7. What were the articles of faith and of practice of the prophet of Islam?
- 8. What was the character, and how extensive were the conquests of the Saracens?
 - 9. Relate leading incidents of Charlemagne's reign.
 - 10. What were his appearance and character?
- 11. Who first invested the Pope with temporal authority?
- 12. Speak of the contest between the Pope and the German Emperors—its cause and the result.
 - 13. Mention of the first three crusades.
 - (a.) Cause.
 - (b.) Duration—dates.
 - (c.) Preacher.
 - (d.) Leaders.
 - (e.) Results.
- 14. Give a concise definition of feudalism; name some of its externals and outgrowths. Where and when did it prevail?

- 15. What evils adhered to this system? What suggestions of it still exist?
- 16. What political situation did feudalism entail on Germany and France?
- 17. How were the German emperors elected after the tenth century?
- 18. When did the Carlovingian line end in Germany—in France?
 - 19. What was the great event of 843 A. D.?
- 20. What is the date of accession of Hugh Capet? How long did this dynasty last?
- 21. What Royal House followed the Capetians? What was its duration?
 - 22. How was England settled?
 - 23 How and when was Normandy settled?
- 24. How long after this, was the Norman conquest of England?
- 25. How many years was the English throne filled by the Norman kings? Give their names.
- 26. By what claim was England involved in war with France?
 - 27. How long did this war last?
 - 28. Name the most able rulers of the Plantagenet line.
- 29. In what war were the branches of this house involved? Give details.

EXAMINATION PAPERS.

RHETORIC.

RHETORIC.

- 1. What does the term essay literally signify? To what is it generally applied in literature?
 - 2. Enumerate and define the principal classes of essays.
- 3. Define the following terms: Description, Narration, Argument, Exposition, and Speculation.
 - 4. Into what are narratives divided?
- 5. What is fiction? What is the difference between a novel and a romance?
- 6. What is a thesis? Give three rules conducive to the strength of an argumentive discourse.
- 7. What is a verse? A stanza? A foot? What is meant by metre?
- What are the principal poetic feet? Why are they so called? Give examples of measures of which they respectively form the chief component part.
 - 9. Describe long metre; common metre; short metre.
- 10. When is a rhyme said to be perfect? When, admissible? In what lines must the last two syllables rhyme? In what, the last three?
- 11. What can you say of the sonnet? Of the most approved arrangement of the sonnet as regards rhyme?
- 12, Define the following varieties of poetry, and name poems illustrating each; Epic, Pastoral, Dramatic, Satirical, and Elegiac.
- 13. What can you say of the three dramatic unities? What constitutes the difference between tragedy and comedy?

- 14. Define Ballad, Ode, Madrigal, and Melodrama.
- 15. Correct the errors in the following sentences, and state your reasons:
- (a.) Hoping that I shall soon hear from you, believe me yours truly.
 - (b.) Much depends on this rule being observed.
 - (c.) Virgil has often been compared to Homer.
- (d.) I have labored as much as a person in my situation can.
 - (e.) We need not, nor do not, limit the divine purposes.
 - 16. Scan the following stanza:
 - "O, the young Lochinvar is come out of the west, Through all the wide border his steed was the best.

And, save his good broad-sword, he weapons had none,

For he rode all unarmed, and he rode all alone."

17. Punctuate the following extract, and scan the first four lines:

"He laid his hand upon the Oceans mane And played familiar with his hoary locks Stood on the Alps stood on the Apennines And with the thunder talked as friend to friend And wove his garland of the lightnings wing In sportive twist the lightnings fiery wing Which as the footsteps of the oreadful God Marching upon the storm in vengeance seemd Then turned and with the grasshopper who sung His evening song beneath his feet conversed Suus moons and stars and clouds his sisters were Rocks mountains meteors seas and winds and storms His brothers younger brothers whom he scarce As equals deemd All passions of all men The wild and tame the gentle and severe All thoughts all maxims sacred and profane All creeds all seasons Time Eternity Ali that was hated and all that was dear All that was hoped all that was feard by man He tossd about as tempest withered leaves Then smiling looked upon the wreck he made"

EXAMINATION PAPERS.

ANABASIS.

ANABASIS.

1. Give a summary of the chief events narrated in the Anabasis as far as you have read.

TRANSLATE INTO GREEK:

2. The generals [indeed, you see], having been thus caught, were brought up to the king, and came to their end by decapitation. One of them, Clearchus, appears (partc. of $\delta ox \epsilon \omega$) to have proved (become) both adapted to, and fond of, war, to the last degree, as is acknowledged by all of those who had acquaintance with him (holding themselves experiencedly of him).

TRANSLATE INTO ENGLISH:

- 3. "Ενθα Κύρος αιδημονέστατος μέν πρώτον τῶν ἡλικιωτοῦν ἐδόκει εἰναι, τοῖς τε πρεσβυτέροις καὶ τῶν ἑαυτοῦ ὑποδεεστέρων μαλλον πείθεσθαι ἔπειτα δὲ φιλιππότατος, καὶ τοῖς ἵπποις ἄριστα χρῆσθαι. "Εκρινον δ' αὐτὸν καὶ τῶν εἰς τὸν πόλεμον ἔργων, τοξικῆς τε καὶ ἀκοντίσεως, φιλομαθέστατον εἰναι καὶ μελετηρότατον.
- 4. Εν τούτφ καὶ βασιλεύς δῆλος ήν προσιὼν πάλιν, ὡς ἐδόκει, ὅπισθεν. Καὶ οἱ μὲν ελληνες στραφέντες παρεσκευάζοντο, ὡς ταὐτη προσιόντος, καὶ δεξόμενοι ὁ δὲ βασιλεύς ταὐτη μὲν οὐκ ήγεν, ἢ δὲ παρῆλθεν ἔξω τοῦ εὐωνύμου κέρατος, ταὐτη, καὶ ἀπήγαγεν, ἀναλαβών καὶ τοὺς ἐν τῷ μάχη κατὰ τοὺς ελληνας αὐτομολήσαντας, καὶ Τισσαφέρνην καὶ τοὺς σὺν αὐτω.

- 5. (1 δ' είπεν. " Ην μεν ήλθομεν απιόντες, παντελώς δυ όπό λιμού απολοίμεθα · ὁπάργει γάρ νύν ήμϊν οὐδεν τῶν ἐπιτηδείων. Επταχαίδεχα γάρ σταθμών τῶν ἐγγυτάτω, οὐδε δεύρο ἐόντες, ἐχ τῆς χώρας οὐδεν εἴγομεν λαμβάνειν ἐνθα δ' εἴ τι ἡν, ἡμεῖς διαπορευόμενοι χατεδαπανήσαμεν. Υῦν δ' ἐπινοούμεν πορεύεσθαι μαχροτέραν μεν, τῶν δ' ἐπιτηδείων οὐχ ἀπορήσομεν.
- 6. Πρόξενος δὲ ὁ Βοιώτιος εὐθὺς μὲν μειράχιον ὂν ἐπεθύμει γενέσθαι ἀνὴρ τὰ μεγάλα πράττειν ἐχανός καὶ ὸιὰ ταύτην τὴν ἐπιθυμίαν ἐδιοχε Γοργία ἀργύριον τῷ Λεοντίνῳ. ᾿Επεὶ δὲ συνεγένετο ἐχείνῳ, ἐχανὸς νομίσας ἢδη εἰναι καὶ ἄρχειν, καὶ, φίλος ὧν τοῖς πρώτοις, μη ἡττῶσθαι εὐεργετῶν, ἦλθεν εἰς ταύτας τὰς σὺν Κύρφ πράξεις καὶ ψετο κτήσεσθαι ἐχ τούτων ὄνομα μὲγα, καὶ δύναμιν μεγάλην, καὶ χρήματα πολλά.
- 7. Compare the adjectives and $\pi\rho\tilde{\omega}\tau\sigma\nu$, in 3, and give the antecedent and the government of $\tilde{\gamma}\nu$, in 5.
 - 8. Write the synopsis of λλθον, νομίσας and ελλήφθην.
- 9. 'Select from the Greek better English words for horse-loving, man-kind-love, wisdom-lover, horse-race, God-science, earth-science, earth-description, animal-science, far-speaker and voice-writer.
- 10. Derive English words in common use from ὑπὸ εἰς, περὶ ὁδὸς, τάσσω, στρατηγός, στενός, ὄρνις, ἀρχή, αὐτός, πρῶτος and βοῦς, and give the etymon, or radical signification of each derivative.

Rochester Free Academy.

EXAMINATION PAPERS.

GREEK LESSONS.

GREEK LESSONS.

- 1. (a) What necessity is there for studying Greek to learn the English language?
- (b) Why does such study teach the surest, most rapid and best practical method of spelling, pronouncing and properly defining a large number of scientific and other words in every-day use? Illustrate by means of the words hydrant, hydrophobia, hydraulics, stenographer, diagnosis, epitaph, lithograph, telephone, phonography, grammar, syllable and hyphen.
- (c) What terms do English speaking people borrow from the Greek, instead of saying (as without these borrowed words they would be obliged to do), an equal legged triangle, a taken-together, or, take-together (sound), a for-a-day (production), a nose-horn (animal), a combination-of-letters-in-one-written-(character), nerveache, a life-written-by-the-very-one-who-lived-it, along-side-of-one-an-other (lines)?
- 2. Accent the words in the following sentence, and place the *spiritus* where needed:

Και επει ηχθησαν παρα Ξενοφωντα, ερωτφ αυτους, ει που ησθηνται αλλου στρατευματος οντος Εληνικου.

TRANSLATE:

3. And, after the woman had been brought to the generals, they ask her, if she has anywhere seen other companies composed of Greeks. The messengers said, that the hill above the way had been seized by the barbarians. When he had been brought to Tissaphernes, he related everything that had taken place. The Pisidians are said to have all gathered in a circle around the exiles.

- 4. This woman asked him, who he was. This will bring us honor in coming time. But what they would do, they did not signify. Do you then, as friends, give us that advice which seems to you to be most appropriate and useful. Tell us then, Seuthes, what you have in mind. To whomsoever it seems best to make the journey with us, let him hold up his right hand.
- 5. Τζ δ΄ ὑστεμαία ήχεν ἄγγελος. Κύρος δὲ οὕπω ήχεν,
 ἀλλ΄ ἔτι προσήλωνεν. Χωρία γάρ ῷχουν ἰσχυρα οἱ Τάοχοι.
 Εἴκαζον δὲ ἄλλοι ἄλλος. Θ΄ μὲν ῷχοντο, Κλέαρχος δὲ
 πεμέμενεν. Εὐρίσχετο δὲ καὶ νεῦρα πολλά ἐν ταῖς κόμαις
 καὶ μόλοβδος ὑστε χρῆσθαι εἰς τὰς σφενδόνας "Ον ῷετο
 πιστόν οἱ εἰναι, ταχὺ αὐτὸν εὐρε Κύρομ φιλαίτερον, ἢ ἑαυτῷ.
 Ἐπεὶ δὲ ἀφίκοντο εἰς τὸ αὐτὸ, ἄσμενοἱ τε εἰδον ὀλλήλους,
 καὶ ἡσπάζοντο ὥσπερ ἀδελφούς.
- 6. 'Εντεύθεν δ' ἐπομεύθησαν οι "Ελληνες διά Μαχρωνων σταθμώς τρεῖς, παρασάγγας δέχα: τἢ πρώτη δὲ ἡμέρα ἀφίχοντο ἐπὶ τὸν ποταμὸν, δς ἄριζε τὴν τῶν Μαχρώνων καὶ τὴν τῶν Σκυθινῶν. Τούτφ τῷ τρόπῳ ἐπορεύθησαν σταθμός τέτταρας ' ἡνίχα δὲ τον πέμπτον ἐπορεύοντο, εἰδον βασίλειὸν τι, καὶ περὶ αὐτὸ κώρας πολλάς. (ὑδ' ἄλλος δὲ τῶν 'Ελλήνων ἐν ταύτη τἢ μάχη ἔπαθεν οὐδείς οὐδὲν, πλὴν ἐπι τῷ εὐωνύμῳ τοξευθήναὶ τις ἐλέγετο.
- 7. Analyze three verbs in 5, and give the synopsis, and inflect the tense of one of them.
 - 8. Compare φίλος, άγαθος and μέγας.
 - Euphemize ποδς, and decline είς.
- 10. Explain the contract forms of verbs in their order, giving only the general rules of contraction as applied to them.

EXAMINATION PAPERS.

CICERO

GICERO.

- 1. State what you know about Archias. His relations with Cicero. Reason the latter gives for undertaking his defense. Of what he was accused, and the issue of the trial.
- 2. (a.) Give a brief general account of the Catalinarian conspiracy. Of Cataline The circumstances under which the first oration against him was delivered, and how matters stood at the delivery of the second.
- (b.) Explain the origin and use of the words, Patres Conscripti.

Translate:

- 3. They say there is a wild animal in Pæonia, which is qui Bonāsus voco, equīnus jucalled the Bonasus, with the ba ceterus bos similis.
- spects like an ox.
- 4. Hannibal reduced under his own power the country which lies between the Alps and the Appennines.

 Hannibal qui inter Alpes Appenninusque ager sum, suus ditio facio.
- 5. Cæsar is said* to have been of tall stature, fair* complexion*, dark* eyes, and sound* health.

There was (only) so much space left between the two lines, as would be sufficient for the onset of both armies.

- Trado* candidus* color* niger* prosper* relinquo' acies* ut* salis' ad concursus* uterque'.
- 6. Sed ne cui vestrum mirum esse videatur, me in quaestione legitima et in judicio publico, quum res agatur apud praetorem populi Romani lectissimum virum, et apud severissimos judices, tanto conventu hominum ac frequentia, hoc uti genere dicendi, quod non modo a consuetudine judiciorum, verum etiam a forensi sermone abhorreat, quaeso a vobis, ut in hac causa mihi detis hanc veniam, accommodatam huic reo, vobis, quemadmodem spero, non molestam, ut me pro summo poëta atque eruditissimo homine dicentem, hoc concursu hominum literatissimorum, hac vestra humanitate, hoc denique praetore exercente judicium, patia-

mini de studiis humanitatis ac literarum paulo loqui liberius et in ejusmodi persona, quae propter otium ac studium minime in judiciis periculisque tractata est, uti prope novo quodam et inusitato genere dicendi.

7. Quae quum ita sint, Catilina, dubitas, si emori aequo animo non potes, abire in aliquas terras, et vitam istam, multis suppliciis justis debitisque ereptam, fugae solitudinique mandare?

"Refer," inquis. "ad senatum:" id enim postulas; et, si hic ordo placere decreverit te ire in exsilium, obtemperaturum te esse dicis. Non referam, id quod abhorret a meis moribus; et tamen faciam ut intelligas, quid hi de te sentiant. Egredere ex urbe, Catilina: libera rem publicam metu: in exsilium, si hanc vocem exspectas, proficiscere. Quid est, Catilina? ecquid attendis, ecquid animadvertis horum silentium? Patiuntur, tacent. Quid exspectas auctoritatem loquentium, quorum voluntatem tacitorum perspicis?

8. Sed cur tamdiu de uno hoste loquimur, et de eo hoste, qui jam fatetur se esse hostem, et quem, quia, quod semper volui, murus interest, non timeo; de iis, qui dissimulant, qui Romae remanent, qui nobiscum sunt, nihil dicimus? quos quidem ego, si ullo fieri possit, non tam ulcisci studeo quam sanare sibi ipsos, placare rei publicae; neque, id quare fireri non possit, si me audire volent, intelligo. Exponam enim vobis, Quirites, ex quibus generibus hominum istae copiae comparentur: deinde singulis medicinam consilii atque orationis meae si quam potero, afferani.

.. (a.) With what does mirrum (in 6) agree? Rule for its gender. (b.) Subject of videatur. (c.) Of what is the first me the subject, and how is that verb governed? (d.) Is the second me subject or object, and of what verb, and how is that verb governed? (e.) Where begins the appositional clause which explains veniam?

10. (a.) Distinguish between loqui and dicere, and derive, from each, three English words, in common use, and give the etvomon, or true sense of each.

(b.) Define properly (etymologically) detract, despicable, deprecate, ameliorate, domineer, sinister, reprehensible, invalidate, veracity, and responsibility.

Rochester Free Academy. EXAMINATION PAPERS. CÆSAR. April, 1878.

CAESAR.

- I. TRANSLATE: Haec eödem tempöre Caesari mandāta referebantur, et legāti ab Aeduis et a Trevīris veniebant: Aedui questum, quod Harūdes, qui nuper in Galliam transportāti essent, fines eörum popularentur; sese, ne obsidītus quidem datis, pacem Ariovisti redimēre potuisse: Trevīri autem, pagos centum Suevõrum ad ripae Rheni consedisse, qui Rhenum transīre conarentur: his pracesse Nasūam et Cimberium fratres. Quibus rebus Caesar vehementer commõtus maturandum sibi existimāvit, ne, si nova manus Suevõrum cum veterībus copiis Ariovisti esse conjunxisset, minus facīle resisti posset. Itāque, re frumentaria, quam celerrīme potuit, comparāta, magnis itinerībus ad Ariovistum contendit.
 - (a.) Parse questum.
 - (b.) In what construction is Treviri?
 - (c.) What word is especially emphatic in the first sentence?
 - (d.) Give the comparison of celerrime.
- II. Translate: Qui suum timorem in rei frumentariae simulationem angustiasque itinerum conferrent, facere arroganter, quum aut de officio imperatoris desperare aut praescribere viderentur. Hace sibi esse curae: frumentum Sequanos Leucos, Lingones subministrare, jamque esse in agris frumenta matara: de itinere ipsos brevi tempore judicaturos. Quod non fore dicto audientes [milites] neque signa laturi dicantur, nihil se ea re commovêri; scire enim, quibuscunque exercitus dicto audiens non fuerit, aut male re gesta fortunam defuisse, aut aliquo facinore comperto, avaritiam esse convictam: suam innocentiam perpetua vita, felicitatem Helvetiorum bello esse perspectam. Itaque se, quod in longiorem diem collaturus esset, repraesentaturum,

et proxima nocte de quarta vigilia castra moturum, ut quam primum intelligère posset, utrum apud eos pudor atque officium an timor valèret. Quod si praeterea nemo sequatur, tamen se cum sola decima legione si praeterea nemo sequatur, tamen se cum sola decima legione iturum, de qua non dubitàret, sibique eam praetoriam cohortem futuram. Huic legioni Caesar et indulserat praecipue et propter virtutem confidebat maxime.

(a.) Govern sibi and curae.

(b.) What is the subject of dicantur?

(c.) In what construction is quibuscumque?

(d.) Give the various forms of double questions.
 (e.) Give the principal parts of the verbs in the last sen-

(e.) (tence.

Translate: Ariovistus ad postulāta Caesāris pauca respondit; de suis virtutibus multa praedicāvit: transisse Rhenum sese non sua spoute, sed rogatum et arcessitum a Gallis: non sine magna spe magnisque praemiis domum propinquosque reliquisse: sedes habere in Gallia ab ipsis concessas: obsides ipsorum voluntāte datos: stipendium capere jure belli, quod victores victis imponere consuerint: non sese Gallis, sed Gallos sibi bellum intulisse: omnes Galliae civitates ad se oppugnandum venisse, ac contra se castra habuisse: eas omnes copias a se uno proelio fusas ac superātas esse. Si itērum experīri velint, se itērum parātum esse decertare: si pace uti velint, iniquum esse de stipendio recusare, quod sua voluntate ad id tempus pependerint. Amicitiam populi Romani sibi ornamento et praesidio, non detrimento esse oportere, idque se ea spe petisse. populum Romanum stipendium remittatur et dediticii subtrahantur, non minus libenter sese recusaturum populi Romāni amicitiam, quam appetierit.

(a.) In what construction is pauca?

(b.) Govern pace.

(c.) Give the principal parts of fusas esse, and of pependerint.

(d.) Govern amicitiani.

(e.) What figure of syntax occurs in the passage?

IV. Translate: Ab his castris oppīdum Remorum nomine Bibrax, abērat milia passuum octo. Id ex itinēre magno impētu Belgae oppugnāre coepērunt. Aegre eo die sustentātum est. Gallorum eādem atque Belgārum, oppugnatio est haec. Ubi, circumjecta multitudine hominum totis moenībus, undīque lapīdes in murum jaci coepti sunt murusque defensorībus nudātus est. testudīne facta, portas succēdunt murumque subruunt. Quod tum facīle fiēbat. Nam quum tanta multitudo lapīdes ac tela conjicērent in muro consistendi potestas erat nulli. Quum finem oppug-

nandi nox fecisset, Iccius Remus, summa nobilitate et gratia inter suos, qui tum oppido praečrat, unus ex his, qui legati de pace ad Caesarem venerant, nuncium ad eum mittit: nisi subsidium sibi submittātur, sese diutius sustinere non posse.

Govern moenibus. (a.)

What is the subject of conjicerent? (b.)

Govern nulli. (c.)

- What part of speech is oppugnandi? (d.)
- (e.) Compare diutius.
- Translate: Caesar certior factus ab Titurio, omuem equitātum et levis armatūrae Numidas, funditōres sagittariospontem traducit, atque ad eos contendit. Acriter in eo loco pugnātum est. Hostes impedītos nostri in flumine aggressi. magnum eorum numerum occiderunt: per eorum corpora reliquos audacissime transīre conantes multitudine telôrum repulērunt: primos, qui trausierunt. equitatu circumventos Hostes, ubi et de expugnando oppido et de interfecerunt. flumine transeundo spem se fefellisse intellexerunt, neque nostros in locum iniquiorem progredi pugnandi caussa viderunt, atque ipsos res frumentaria deficere coepit, concilio convocato, constituerunt optimum esse, domum suam quemque reverti, et, quorum in fines primum Romani exercitum introduxissent, ad eos defendendos undique convenirent, ut potius in suis quam in alienis finibus decertarent, et domestices copiis rei frumentariae uterentur. Ad eam sententiam cum reliquis caussis haec quoque ratio eos deduxit; quod Divitiacum atque Aeduos finībus Bellovacorum appropinquare cognoverant: his persuaderi nt dintins morarentur neque suis auxilium ferrent, non poterat.

(a.) Govern armatūrae. Parse audacissime. (b.)

What is the subject of fefellisse?

(d)Govern domum.

Govern his.

"From this pacific and harmless temper, thus propitious to others and ourselves, to domestic tranquility and to social happiness, no man is withheld but by pride, by the fear of being insulted by his adversary, or despised by the world. It may be laid down as an unfailing and universal ixiom, 'that all pride is abject and mean.' It is always an ignorant, lazy, or cowardly acquiescence in a false appearance of excellence, and proceeds not from consciousness of our attainments, but insensibility of our wants."

Give a list of the words derived from the Latin in the above passage, and the Latin words from which they are

derived.

Rochester Free Academy.

EXAMINATION PAPERS.

LATIN READER.

LATIN READER.

- Horum minor natu, Amulius, fratri optionem dedit, utrum regnum habere vellet, an bona, quae pater reliquisset.
 - 2. Translate the above sentence.
 - 3. Analyze it.
- 4. State the most obvious principles in the arrangement of its words.
- 5. What law is followed in the choice of the dependent verbs?
 - 6. What verbs are in the subjunctive mood ?
 - 7. Why is this mood required?
 - 8. Parse quae.
 - 9. What is the syntax of natu?
 - 10. Compare minor.
 - 11 What is the composition of reliquisset?
- 12. Give any derivatives of natu, of dedit, either root, and of reliquisset.
 - Derive regnum.
- 14. What kind of a verb is vellet? Why? Give the principal parts. Name any others of the same class.
 - 17. Decline horum.
- 18. What do you understand by case as the property of certain parts of speech?
- 19. To what division of Grammar does it specially appertain?
 - 20. Derive the names of the Latin cases.

- 21. Name three offices of the nominative case.
- 22. What relations are expressed by the genitive?
- 13. What parts of speech are modified by the genitive case?
 - 24. Name three offices of the accusative case.
- 25. Why has the vocative the same form as the nominative?
 - 26. On what does the dative usually depend?
 - 27. What two cases are preceded by prepositions?
- 28. How is the voluntary agent of the passive voice expressed?
- 29. When is the name of a place put in the genitive; in the accusative; in the ablative?
 - 30. What parts of speech are inflected?
 - 31. What does the term inflected, mean?
 - 32. What purpose does inflection serve?
- 33. Derive graduate, illegible, urbane, victuals, manual, domestic.
 - 34. Translate:
- (a.) Quum Priscus Tarquinius occisus esset, Tanaquil de superiore parte domus populum allocuta est, dicens: regem grave quidem sed non letale vulnus accepisse; eum petere, ut populus, dum convaluisset, servio Tullio obediret.
- (b.) Romāni quum adversum Veientes bellum gererent, familis Fabiōrum sols hoc bellum suscepit. Profecti sunt trecenti sex nobilissimi homines, duce Fabio consule. Quum saepe hostes vicissent, apud Creměram fluvium, castra posperunt.
 - 35. What is the syntax of clause (a), regem grave &c.
 - 36. On what does it depend?
- 36. What is the composition of allocuta, obediret, and accepisse?
- 38 Separate these words into syllables, and place accent, stating reasons
 - 39. What is the positive of superiore?
 - 40. In what two declensions is domuus?
 - 41. What is the root and any derivative of vulnus?
- 42. What is its gender? Give other affixes denoting the same gender in this declension.

- 33. Parse letāle.
- 44. To which conjugation does petère belong? How are the conjugations distinguished?
 - 45. What is the construction of Servio Tullio?
 - 46. Give the principal parts of the verbs in (b).
 - 47. Inflect the tense of each.
 - 48. Parse posuērunt.
 - 49. What is the syntax of duce Fabio consule?
 - 50. Translate:
 We know that the sun is the light of the world.

We live by hope. The soldiers forced their way into the city. Rochester Free Academy.

EXAMINATION PAPERS.

GEOMETRY

March, 1878.

GEOMETRY.

Ť.

- (a). From a given point, how will you draw a line parallel to a given line?
- (b). On a given line, how will you describe a segment of a circle that shall contain an angle equal to a given angle?
- (c). Cut a line into mean and extreme ratio; that is, so that the whole line shall be to the greater part, as that greater part is to the less.
- (d). Find the side of a regular polygon of fifteen sides, which may be inscribed in any given circle.

II.

Solve the following problems:

- (a). Given, the radius of a circle unity, to find the area of regular inscribed and circumscribed hexagons.
- (b). Given, the chord of any arc, to find the chord of one-half that arc, the radius of the circle being unity.

TIT

Solve also the following problems:

- (a). Two chords on opposite sides of the center of a circle are parallel, and one of them has a length of 16 and the other of 12 feet, the distance between them being 14 feet. What is the diameter of the circle?
- (b). If we assume the diameter of the earth to be 7,956 miles, and the eye of an observer be 40 feet above the level of the sea, how far distant will an object be, that is just visible on the carth's surface?

- (c). Three brothers, whose residences are at the vertices of a triangular area, the sides of which are severally 10, 11 and 12 chains, wish to dig a well which shall be at the same distance from the residence of each. Determine the point for the well, and its distance from their residences.
- (d). The diameter of a circle is 12, and a chord of the circle is 4; what is the length of the perpendicular drawn from the center to this chord?

IV.

- (a). What is a diedral angle? a solid angle? a triedral angle?
- (b). When is a straight line perpendicular to a plane?
- (c). When are two planes perpendicular to each other? parallel to each other?

V.

- (a). If two lines are parallel, prove that they will be equally inclined to any given plane.
- (b). If two straight lines be drawn in any direction through parallel planes, prove that they will cut the lines proportionally.
- (c). Prove that any one of the three plane angles bounding a triedral angle is less than the sum of the other two.

Rochester Free Academy.

EXAMINATION PAPERS.

ALGEBRA.

March, 1878.

ALGEBRA.

1-4. What is Algebra? What is the object of alge-gebraic notation? Define a Power. Analyze a fractional exponent.

What is the degree of a Term? Of an Equation? Of a Radical quantity? Define a Residual. Of two negative quantities, which has the greater value?

- 5. What is the value of a quantity when affected by zero for an exponent? Prove it.
- 6. Give several forms of binonials, of each of which one or more factors can be obtained by inspection.
- 7. By what principle may we so transform a quantity which has factors affected by negative exponents, that all its exponents shall be positive?

Illustrate in the quantity $\frac{a^{-2}x^2}{h^{-1}x^{-\frac{1}{2}}}$.

8. Add
$$\frac{bc}{(a-b)(a-c)}$$
, $\frac{ac}{(b-c)(b-a)}$, and $\frac{ab}{(c-a)(a-b)}$.

9. Simplify
$$\frac{\frac{m^2 + n^2}{n} - m}{\frac{1}{n} - \frac{1}{m}} \times \frac{m^2 - n^2}{m^8 + n^8}$$

10. Find the value of x in the equations:

$$x + y + z = 0.$$

 $(b + c) x + (a + c) y - (a + b) z = 0.$
 $bcx - acy - abz = 1.$

11. In the solution of a problem what constitutes the Notation? What the Statement?

- 12. For what purpose is the Problem of the Couriers given? Discuss it under the supposition that a = b.
- 13. $\frac{3x+1}{x+3} = \frac{3x-9}{x-3}$. Under what supposition will the solution of the preceding equation give an erroneous result? Show how it is that a method of solution in itself correct, can result in an erroneous value for the unknown quantity.
- 14. Two teachers, A and B, have the same monthly wages. A is employed 9 months in the year and his annual expenses are \$450; B is employed 6 months in the year, and his annual expenses are \$300. Now A lays up in two years as much as B does in three years. Required the monthly wages of each. Interpret the result.
- 15. Subtract 2x 3 > a from x 15 = b, and find the limit of x. Give the reason for each resulting inequality.
- 16. Show that $\frac{a^m}{a^n} = a^{m-n}$ when either m or n are fractional.
 - 17. Divide $V\sqrt{\frac{1}{1}} \times \sqrt[8]{24}$ by $V\sqrt[8]{128} \times \sqrt{3}$.
 - 18. Multiply $3 + 2\sqrt{-2}$ by $2 2\sqrt{-3}$.
 - 19. Simplify $\left(\frac{(\frac{1}{2})^3 \sqrt{3\frac{1}{2}}}{2\sqrt{2}(\frac{3}{4})^{\frac{1}{2}}}\right)^{\frac{1}{2}}$
- 20. A and B have the same income. A contracts an annual debt amounting to \$\display\$ of it; B lives upon \$\display\$ of it; at the end of two years B lends to A enough to pay off his debts, and has 32 dollars to spare. What is the income of each?
- 21. A sets out from a certain place, and travels at the rate of 7 miles in 5 hours; and eight hours afterward B sets out from the same place in pursuit, at the rate of 5 miles in 3 hours. How long and how far must B travel before he overtakes A?

- 22. Two persons, A and B, can perform a piece of work in 16 days. They work together 4 days, when A is called off, and B is left to finish it, which he does in 36 days. In what time would each do it separately?
- 23. A general arranging his men in the form of a solid square, finds that he has 21 men over; but attempting to add one man to each side of the square, finds he wants 200 men to fill up the square. Find the number of men.
- 24. A crew which can row at the rate of 12 miles an hour in still water, finds that it takes 7 hours to come up a river a certain distance, and five hours to go down again. At what rate does the river flow?

25.
$$V \frac{a^{2}(a-b)}{a-b} - V \frac{\overline{b^{3}(a-b)}}{a-b} - (a^{3}-3b^{3}) V \frac{1}{a^{2}-b^{3}}$$

= what?

26. Find the fourth root of \(\frac{4}{5}\sqrt{\sqrt{3}}\sqrt{\frac{1}{5}}

27. Simplify
$$\frac{(3 - |-|V|\overline{3})(3 - |-|V|\overline{5})(|V|\overline{5} - 2)}{(5 - |V|\overline{5})(|V|\overline{3} - |-1)}$$

- 28. How find the factor which will rationalize the denominator of the fraction $\frac{1}{a^{\frac{1}{4}} b^{\frac{1}{4}}}$?
 - 29. Find value of x in $\frac{V_{4x--1}}{V_{4x-1}} = \frac{V_{4x}}{1 + V_{4x}} = 9$.
 - 30. Find the value of x in $\frac{1}{5} \to \frac{1}{x} = V \frac{1}{\frac{1}{2}5} \to \frac{1}{x} \frac{1}{5} + \frac{1}{x} \frac{1}{5} + \frac{1}{x^3}$

Examination Papers.

GEOMETRY--B.

GEOMETRY++B.

I. What is a line? Name and define the various kinds of lines. What is a surface? Name and define the various kinds of surfaces. What is a plane angle? Name and define the various kinds of plane angles.

II. Give the division of triangles with reference to sides. Define each kind. Give the division also with reference to angles. Define each kind. Name and define the figures of four sides.

III. What is the measure of a parallelogram? Of a triangle? Of a trapezoid? To how many right angles is the sum of the angles of a triangle equal? Of a parallelogram? Of any polygon?

IV. Discuss the following theorem: The square described on the difference of two lines is equivalent to the sum of the squares described on the two lines diminished by twice the rectangle measured by the lines.

V. Similar triangles are to one another as the squares of their homologous sides.

VI. Define a circle. Diameter. Radius. Arc. Chord. Tangent. Secant.

VII. What is the measure of an angle at the center of a circle? Of an angle at the circumference? Of an angle formed by a tangent and a chord? Of an angle formed by a secant and a tangent?

VIII. Solve the following problem: The perpendicular height of a mountain on the island of Teneriffe is 3 miles, and its summit can be seen from vessels 154 miles distant, what is the diameter of the earth?

Examination Papers.

ANCIENT HISTORY

ANCIENT HISTORY.

T.

EGYPT.

According to Manetho, what is the date of the first dynasty? When were the pyramids built? What is the size of the largest pyramid? What was the population of ancient Egypt? Describe the Egyptian race. Name the distinctive features of their society and of their religion. Why did they not advance? How recently and by whom were the hieroglyphics deciphered?

TT.

ASSYRIA.

From what source do we derive our most reliable knowledge of ancient nations? Why are there so few ruins in the valley of the Euphrates? Name the three kingdoms that successively occupied this region. In what form did they record events? How was the commerce of the ancients carried on, and what were some of the articles of commerce? Give an outline of Nebuchadnezzar's reign, with dates. Who was the most distinguished of the Assyrian monarchs, for the splendor of his reign?

HI.

PALESTINE and PHŒNICIA.

Give situation and size of the land of the Hebrews. Name their different forms of government. At what time were they brought into the power of the Assyrians? What two events limit their national existence? What direction did Phoenician enterprise take? What important invention is generally conceded to them? What were their leading cities? What famous city was founded by them? When? To what division of races do they belong?

IV.

PRESTA.

In what century were the Persians dominant? Who founded and who organized the empire? How did it compare with other Eastern empires? Speak of the Persian character and religion.

V.

GREECE.

What element was developed in the Greek race opposed to the Asiatic? Name the three largest cities. How did the Spartans attain their brave character? When does the authentic history of Greece begin? Give an outline of the Persian invasion of Greece, naming five battles, with dates; also the Greek and the Persian generals, and the results of the conflict. Name three historians, three orators, three poets and three philosophers, of or near the age of Pericles. When was that age? Give a general view of Greek religion. Speak briefly of Socrates. How long was Alexander the Great occupied in the subjugation of Asia and Egypt? Where and when did he die? How was his kingdom divided?

VI.

ROME.

What advance in government was made by the Romans? What four successive forms of government did they have? How long did the struggle continue before political equality was realized? What was the object of the first wars—the wars of the second period? In what foreign wars were the Romans engaged? Give an account of Hannibal's course. What generals conquered the provinces that formed the Roman Empire? When?

VII.

PLACE IN HISTORY:

Solon, Pyrrhus, Regulus, Pompey, Aristides, Sargon, Berosus, Zoroaster.

Place the following battles: Actium, Leuctra, Phasalia, Arbela and Cannae.

Examination Papers.

ALGEBRA.

ALGEBRA.

- 1. Define and give an illustration of a Coefficient. A Term. A Factor. Similar terms.
- 2. Express in algebraic language the following quantity: The quotient obtained by dividing the sum of a and b by the product of c, d and the square of m is equal to p times the sum of m, n and x.
 - 3. Remove the signs of aggregation from

$$a - \left\{b + \left[c + d - (-a + b)\right] - (b + d)\right\}...$$

- 4. Find the difference between $4a^2x^2 3ab + 16$, and $-2a^2x^2 + 3ab 16$, and explain the process.
- 5. Multiply $a^2 b^2x$ -|- x^my^n by -abx, giving reason for signs in the product.
- 6-7. By what is each of the following quantities divisible? $8m^3 + 125m^3$. $a^3b^3 27x^6$.
- 8-12. Give the prime factors of each of the following quantities: $(x |-y|^2 m (x |-y|) \cdot (a |-b|^2 |-2 (a |-b|) \cdot (c |-d|) |-(c |-d|^2 \cdot p^2 2pq |-q^2 m^4 \cdot x^2 |-6x |-8 \cdot x^2 3x 28 \cdot |-6x |-8 \cdot x^2 3x |-28 \cdot x^2 |-6x |-8 \cdot x^2 |-8 \cdot x^$
- 13. What is the greatest common divisor of the last two of the preceding quantities?
- 14. What factors will constitute the least common multiple of the same two quantities?
- 15. Find the least common multiple of $2x^2 7xy 3y^2$ and $2x^2 5xy 2y^2$. Explain your work, showing how you know that your result consists of the required factors of a least common multiple.
 - 16. Reduce to lowest terms $\frac{x^2 |-(a |-c)x |-ac}{v^2 |-(b |-c)x |-bc}$

17. Divide
$$a^2 - b^2 - c^2 + 2bc$$
 by $\frac{a - b - c}{a - b - c}$.

18. Simplify
$$\frac{a}{b + \frac{c}{d + \frac{e}{f}}}$$

19. Reduce the following equation to obtain the value of

$$x. \quad (a + x) (b + x) - a (b + c) = \frac{a^2c}{b} + x^2.$$

- 20. When are equations said to be simultaneous?
- 21. How many and what methods of elimination are commonly employed?
 - 22. Find the value of x in the equations:

$$ax + by = c.$$

$$mx - ny = d.$$

- .23. A man hired a servant for one year at the wages of \$90 and a suit of clothes; but at the end of 7 months the servant quits work, and receives \$33.75 and the suit of clothes. At what value were the clothes estimated?
- 24. A general arranging his men in the form of a solid square, finds he has 21 men over; again attempting to add one man to each side of the square, finds that he wants 200 men to fill up the square. Find the number of men.
- 26. A bought eggs at 18 cents a dozen; had he bought 5 eggs more for the same money, they would have cost him $2\frac{1}{2}$ cents a dozen less. How many eggs did he buy?

Examination Papers.

BOOK KEEPING.

Book Keeping.

- What are effects? liabilities?
- 2. What is an account? Which is the debit and which the credit side of an account?
- 3. Into how many and what classes are accounts divided, and what does each exhibit?
- 4. What account represents the proprietor, and with what is it debited and credited?
- 5. What is Shipment or Adventure, and with what is it debited and credited?
 - 6. With what is a partner debited and credited?
- 7. With what is Bills Receivable account debited and credited?
- 8. With what is Bills Payable account credited and debited?
- 9. How should an error in the Day Book be corrected? An error in the Ledger?
- 10. In preparing to close, what entries are first made in the Ledger, on which side of the accounts, and in what kind of ink?
- 11. How is an account balanced, and what accounts are closed to Loss and Gain?
- 12. What is Consignment, with what is it debited and credited, and how is it closed?
- 13. What is Mdse. Co., with what is it debited and credited, and how is it closed?
- 14. What does a red ink entry on the Ledger denote, and what accounts are closed to Balance?
- 15. With what are notes and mortgages debited and credited, what is a Trial Balance, and when is it taken?
- 16. How many methods of exhibiting the losses and gains are there, and what are they?

JOURNALIZE.

- 17. Sale of Mdse. for Cash, another's note, and on %. Purchase of Mdse. for your own note, another's note, and on %. Sale of Mdse. and a farm, for a house and lot, Cash, and a mortgage on the farm.
- 18. Sale of Mdse. for another's order on you, for Cash, and on 4. Exchanging notes with another. Failure of a party whose note you hold: payment of part in Cash, part in Mdse., and balance lost.
- 19. Discounting your own note. Sale of Mdse. for your own note and Cash, you being allowed a discount on the note. Discount by another person of his note held by you.
- 20. Investment, by a partner, of Cash deposited in a bank, Mdse., a note against another, a mortgage on a farm, and a part of two steamboats. Assumption by the firm of a note against that partner and his indebtedness to another person. Sale of a part of a steamboat for Cash deposited in a bank.
- 21. Purchase of part of a steamboat, and payment by a note against another, by check on bank, and by Cash—the note not yet due and the firm allowing a discount thereon. Sale of a farm, and receipt of payment by offset of an account which the firm owe, by Cash, and by a mortgage on the farm. Discount of firm's note and payment of proceeds by chk. on bank.
- 22. Payment, in Cash, of firm's note with interest to date. Payment of firm's note, with interest to date, by issuing a new note for the amount. Payment of Cash to a partner, for private use.
- 23. Allowance of interest to each of two partners on invested capital. Receipt of an account sales without remittance. Receipt of an account-sales accompanied by a sight draft for part of proceeds due the firm.
- 24. Shipment of Mdse. to Buffalo, to be sold on % and risk of firm, and payment of drayage on same in Cash, and of insurance by firm's note. Purchase, for Cash, & † prem., of a draft, and remittance of same to pay an account against the firm. Shipment of Mdse. to another, per his order, and payment of drayage on same, in Cash.

Examination Papers.

ARITHMETIC.

Arithmetic.

1. State the principles upon which the Roman method of notation is founded.

State also those upon which the Arabic method is founded.

Express the following numbers, the first by the Roman, the second by the Arabic method:

- (1.) 1877.
- (2.) Ninety-nine quintillion seven hundred forty-one trillion fifty-four billion one hundred eleven million one hundred one.
- 2. State the general principles which relate to changing the terms of division in whole numbers:
 - (a.) By addition or substraction.
 - (b.) By multiplication or division.
 - 4. What is a fraction?

What does the numerator denote? The denominator? State the general principles of fractions.

- 5. A owned $\frac{2}{3}$ of a cotton factory, and sold $\frac{2}{4}$ of his share to B, who sold $\frac{1}{2}$ of what he bought to C, who sold $\frac{2}{3}$ of what he bought to D; what part of the whole factory did each then own?
- 6. State the principles of decimal notation and numera-

Deduce the rule for decimal notation, for decimal numera-

Express in the form of a decimal: eight hundred forty-one million five hundred sixty-three thousand four hundred thirty-six trillionths.

7. Reduce .00032 to a common fraction.

Reduce $\frac{1.7}{2.56}$ to a decimal fraction.

8. Give the table for linear measure.

What is the U. S. standard unit of measures of extension?

How determined?

9. Give the table for Troy weight.

What is the U. S. standard of weight?

How determined?

- 10. Which contains the greater number of grains, a pound Troy or a pound apothecaries'? a pound Troy or a pound avoirdupois? a pound avoirdupois or a pound apothecaries'?
 - Reduce ²/₂T¹/₁₂ of a mile to the fraction of a yard.
 Reduce 2 R. 20 P. to the fraction of an acre.
- 12. Name and define the elements which enter into operations in percentage.
- 13. In a battle 4 % of the army were slain upon the field, and 5 % of the remainder died of wounds, in the hospital-The difference between the killed and mortally wounded was 168; how many men were there in the army?
- 14. Given the total valuation of the taxable property of a town \$400,000, the amount to be raised by tax \$40,000; what tax does A pay whose property is valued at \$25,000?
- 15. Given the time, rate per cent. and amount, how do you find the principal?

Given the principal, time and interest, how do you find the rate per cent.?

16. I invest \$35,680 in a business that pays a profit of \$223 a month; what annual rate of interest do I receive?

What principal in 2 years 3 months 10 days, at 5 per cent. will amount to \$1893.61;?

17. What is exchange? a bill of exchange? the course of exchange? how many parties are there to a transaction in exchange? what are they?

What must be paid in New York for a draft on Boston, at 30 days, for \$5400, exchange being at ½ % premium?

18. On the first day of January, 1860, a man gave 3 notes, the first for \$500 payable in 30 days; the second for \$400 payable in 60 days; the third for \$600 payable in 90 days. What was the average term of credit, and what was the equated time of payment?

What is meant by the average term of credit? by the equated time of payment?

Examination Papers.

COMMERCIAL ARITHMETIC.

Commercial Arithmetic.

- 1. Find the sum of the numbers from 78437 to 78450 inclusive.
- 2. Multiply 1234567 by 4600407 and write the answer in words.
- 3. Find the G. C. D. of 7011, 11193 and 11193, and the L. C. M. of 93, 132, 232, and 309.
- 4. Bo't 525 ft. poplar, @ $17.12\frac{1}{2}$ per M., 1867 ft. hemlock, @ 3.25 per C, and 525 lbs hay, @ 18 per ton; what did it all cost?
- 5. Sold B. Frank Enos, for cash, 18 yds. velvet, @ \$10.50; 9 yds. silk, @ \$5.25; 16° yds. calico, @ 8°c.; 12° yds. cassimere, @ \$1.50; 8 yds. sheeting, @ 12c.; 6 yds. linen, @ 75c.; 7 yds. broadcloth, @ \$4.65. Make out the bill.
 - 6. Find the value of $\left(\frac{\frac{1}{7} + \frac{2}{1}}{8\frac{1}{8}} + \frac{77}{6\frac{1}{1}}\right) + 4 \times \frac{5}{8\frac{1}{6}}$.
- 7. Which is the heavier, and how much: an ounce of silver or an ounce of lead?
- 8. Bo't 14 lbs. 12 oz. opium, by avoirdupois weight, @ 62% per ounce, and sold it @ 5c. per scruple; how much did I gain?
- 9. What will be the cost of excavating a cellar 25 ft. long, 15 ft. wide, and 7 ft. deep, @ 45c. per load?
 - 10. Reduce 213 rds. 1 yd. 2½ ft. to the fraction of a mile.
 - 11. Reduce 1 da 10 hr. 13 min. 26 sec. to days.
- 12. Bo't 16 bales hay, ea. 4 cwt. 96 lbs., @ \$2.37½ per cwt.; how much did it cost?

- 13. What will it cost to plaster a room 40 ft. long, 22 ft. wide, and 9 ft. 6 in. high, @ \$3.15 per square of 100 ft., deducting 96 sq. ft. for doors and windows.
- 14. The regular price of a lot of drugs is \$96; if I buy @ 10 % off and sell at 25 % on, what do I gain?
- 15. If I buy glass @ 40 % off and sell it @ 20 % from the list price, what do I gain per cent?
- 16. A lawyer collects a debt for a client, takes 3½ % for his fee, and remits the balance, \$19350; the debt and the fee?
- 17. A consignment of grain worth \$2850 was insured @
- 3½ % to cover the premium; amount insured?
 18. Principal, \$125; time, 30 days; write the note bear-
- ing interest, and find the amount due at maturity.

 19. What is the present worth of \$460.50 @ 3 yr. 9 mo.

 18 da., without interest, money being worth 6 \$?
- 20. What are the proceeds of a note for \$500, @ 4 yr. 2 mo., discounted at the bank @ 7 %?

Examination Papers.

Commercial Law

Commercial Law.

- What is a contract?
- 2. Who are competent to make a legal contract?
- What is a corporation?
- 4. What are the limits of a contract made by a corporation?
- 5. If a legally competent person make a contract with a minor can either party refuse to fulfil the conditions of it?
- 6. What legal rights have married women in any of the states?
- 7. Can an alien enemy enforce the terms of a contract made by himself, and why?
- 8. Is a contract obtained through compulsion valid, and why?
 - 9. What is a valuable consideration?
 - 10. What is a good consideration?
- 11. Is a good consideration valid as against a creditor of the grantor or subsequent purchaser in good faith?
 - 12. What is an insufficient consideration?
- 13. Under what circumstances may one collect pay for services gratuitously rendered?
- 14. Can a contract having an illegal consideration be enforced as against either party?
 - 15. What is a moral consideration?
 - 16. What is an executed consideration?
- 17. Under what circumstances is an executed consideration valid?
- 18. To what extent may one bind himself not to conduct a legitimate business?

- 19. If a fraudulent contract be executed, can either party rescind it?
- 20. If a contract be immoral or criminal, which party has remedy against the other?
 - 21. What is a negotiable instrument?
 - 22. Who are the original parties to a negotiable instru-
- 23. What subsequent parties may there be to a negotiable instrument?
- 24. In what sense may a negotiable instrument be considered a contract?
- 25. Must the consideration in a negotiable instrument be expressed?
- 26. Are the words "value received" a necessary part of a note or draft?
 - 27. Wherein does a note differ from a draft?
 - 28. How many parties to a note, and what are they?
 - 29. How many parties to a draft, and what are they?
 - 30. What relation to a note does each party to it sustain?
 - 31. What relation to a draft does each party to it sustain?
 - 32. How is a draft accepted?
- 33. What is the legal distinction between a note and a draft?
- 34. What parties to notes and drafts correspond to each other?
 - 35. What is an indorsement in full?
 - 36. What is an indorsement in blank?
- 37. How may the payee indorse a note or draft so as not to be held in payment.
- 38. When must a note or draft be indorsed to make it negotiable?
 - 39. When will a note @ 60 days, given to-day, fall due?
 - 40. When will a draft @ 60 days' sight, mature?
- 41. When is a note due which specifies no time of payment?
- 42. How should the amount in a negotiable instrument be expressed?

- 43. What effect will the misspelling of a word in a negotiable instrument have respecting its validity?
- 44. What is an inland bill of exchange? A foreign bill of exchange?
 - 45. How are foreign bills of exchange usually drawn?
 - 46. How may a check, drawn to order, serve as a receipt?
- 47. How soon must a check be presented at the bank in order to hold the indorser?
- 48. If the drawee of a draft fails or refuses to accept the same, to whom may the holder look for payment?
- 49. When should the presentment for acceptance of a draft be made?
 - Write a note, your favor, and indorse it in full.
 Write a draft on yourself and accept it.

Examination Papers.

CIVIL GOVERNMENT

Civil Government.

- State the origin of land titles in the United States.
- 2. Describe the Charter governments.
- 3. When and where did the Second Continental Congress meet, and what important act did it pass?
- 4. What was the Confederation, and how were the delegates to Congress chosen?
- 5. Of how many houses did Congress under the Confederation consist, and what was the character of the Union?
- 6. Who was President of the convention that framed the Constitution, and when and where did the first Congress under it meet?
 - 7. Give the preamble to the Constitution?
- 8. Through what departments is civil government under the Constitution administered, and where are the powers of each department vested?
- 9. By whom shall Representatives be chosen, and what shall be their qalifications?
- 10. By whom shall Senators be chosen, and what shall be their qualifications?
- 11. Where shall bills for raising revenue originate, and where shall the sole power to try impeachments be vested?
- 12. What officer does the Constitution require the Senate to elect, and who shall try impeachments in this state?
- 13. How often shall Congress meet, and what is treason against the United States?
- 14. For what length of time may a copyright be granted and renewed, and what is a letter of marque and reprisal?
- 15. By what vote shall a treaty be ratified to make it valid, and what are excises?
- 16. What is the second process by which a bill may become a law?
- 17. For whom do the people vote at a Presidential election, and who count the votes for President?

- 18. What is the third process by which a bill may become a law?
 - 19. Who constitute the President's cabinet?
 - 20. What is slander, and when does it become a libel?
- 21. How shall amendments to the Constitution be proposed and ratified?
- 22. What is a writ of habeas corpus, and what is an expost facto law?
 - 23. How shall vacancies in the Senate be filled?
 - 24. What is original and what is appellate jurisdiction?
- 25. How were the several classes of Federal courts established?
- 26. What qualifications shall the President possess, and in what cases shall he not have the power to grant reprieves and pardons?
- 27. What religious rights are guaranteed by the Constitution?
- 28. What power has the President to convene and adjourn Congress?
- 29. What military power has the President, and what is an impeachment?
- 30. How may an alien become a citizen of the United States, and what is an indictment?
- 31. What is a treaty, and what is the last amendment to the Constitution?
- 32. What official immunities shall members of Congress enjoy, and what is arson?
- 33. What are the respective duties of a grand and a petit jury?
- 34. What are the powers and duties of the Vice President, and what is burglary?
 - 35. What is an indirect tax, and what is a codicil?
 - 36. What is a freehold, and what is a deed?
- 37. How often may a person be put in jeopardy of life for the same offense, and how shall he be tried?
- 38. What amendment to the Constitution shall not be made, and in what case is the trial by jury not preserved?
- 39-50. Describe the State, the War, the Treasury, the Navy, the Post-Office and the Interior Departments.

Examination Papers.

ASTRONOMY

Astronomy.

- What constitutes our universe?
- 2. Who was Pythagoras, and what did he teach?
- 3-4. Who were Ptolemy and Copernicus, and what were their teachings?
 - 5-6. For what are Galileo and Newton celebrated?
- 7. How is the term magnitude used in regard to the stars?
 - 8. What constitutes a zodiacal constellation?
- 9. Interpret the following expressions: Alpha (a) Lyræ, Beta (β) Ursæ Mınoris.
- 10. What distinction do you make between optically double and physically double stars?
- 11. State the most recent theory to account for the change in brightness of the variable stars.
- 12. How does the Nebular hypothesis account for the formation of the heavenly bodies?
- 13. How has the inclination of the sun's axis been determined?
 - 14. Enumerate the benign influences of the sun.
- 15. Name the largest body of the solar system, and state its position with regard to the other bodies of that system.
 - 16. Describe the motions of the planets and their satellites.
- 17. How does the sensible horizon prove that the earth is spherical?
- 18. What is the effect of the inclination of the earth's axis upon the length of days and nights.

- 19-30. To an observer, at the north pole, how would the sun appear to move in the heavens; to what altitude would it attain at midday?
- 21. If the axis of the earth should cease to incline, how would the earth's seasons be affected?
- 22-23. If an observer could be on the sun at the time of the winter solstice, what zone of the earth could he not see? What entire zone could he see? Of what zone could he see more than one half, of what less than one half, and of what just one half?
- 24. What is the form of Jupiter's disc when viewed through a telescope, and what does this indicate in regard to the time of its axial rotation?
- 25. Give a brief description of the telescopic appearance of the moon.
- 26. How do you account for the fact that four-sevenths of the moon's surface is visible, instead of just one-half?
- 27. How do you account for the fact that the moon is new every 29d. 12h. 44m., and not every 27d. 7h. 43m., the time in which she performs her revolution around the earth?
 - 28. Name and classify the eclipses.
- 29. Under what circumstances will an annular eclipse of the sun take place?
- 30. Name and describe the planet which closely resembles the earth?
- 31. State the theory that accounts for the November shower of meteors.
- 32. Name and describe the terms used in connection with the celestial spheres that correspond to terrestrial latitude and longitude.
- 33. How do you account for the fact that Mars, when at opposition, is sometimes much nearer the earth than at other times?
 - 34. Why is the sidereal shorter than the mean solar day?
- 35. What is the latitude of a person who observes the altitude of the pole star to be 60°? Give the reason for your answer.

- 36. What stars, to a person whose latitude is 42° N., will be north circumpolar?
- 37. The eclipses of the moons of Jupiter occur 16m, 36s, later when Jupiter is at superior conjunction than when he is at opposition. From this fact determine the velocity of light, on the supposition that the earth is 91,500,000 miles from the sun.
- 38. An equatorial sun spot is twelve and one-half days in crossing the sun's disc; in what time would this indicate that he rotates on his axis?
- 39. If Venus is 66,000,000 miles from the sun, how much farther is it from the earth at superior than at inferior conjunction?

HONORARY.

- 1. The moon and the sun appear to be of the same size, and they are respectively 240,000 and 91,500,000 miles from the earth; how many times longer is the diameter of the sun than that of the moon?
- 2-3. A mariner at sea, on taking his observations at noon, finds that the altitude of the sun is 40°; he finds from his nautical almanac that it has at that time a south declination of 21°, and his chronometer, which keeps Greenwich time, indicates 2 o'clock P.M.; what is his latitude and what is his longitude?
- 4. After making allowance for atmospheric refraction, at sea, is found that that the summit of a mountain one mile high is just visible in the horizon, at a distance of 89 miles; what is the diameter of the earth?
- 5. On the planet Jupiter, a body falling from a state of rest; falls 95 centimetres the first second of its descent; what is the whole distance through which it falls during five seconds of time, and what is its velocity at the end of the fourth second?

Examination Papers.

NATURAL PHILOSOPHY.

Natural Philosophy.

- 1. How do we know that anything exists?
- 2. Why is it not proper to say an atom of water?
- 3. What reason have we for believing that porosity is an essential property of matter?
- 4. How does molecular force in gaseous, differ from that in solid and liquid bodies?
- 5. Why are drops of rain, of tears and of dew generally spherical?
- 6. Where upon the earth's surface will a body weigh the most and where the least?
- 7. In the French system of weights and measures what is the unit of measure?
- 8. How is the unit of weight obtained and what is it called?
- 9. What is meant when we say that the specific gravity of gold is 19.360 and that of oxygen 1.1?
- 10. When will the centre of gravity in a body coincide with its centre of magnitude?
- 11. What is the meaning of the term resultant in connection with motion?
 - 12. What is the law of the equilibrium of the lever?
- 13. In which class of levers is the power always greater than the weight? State the cause of this.
 - 14. Of what use is the fixed pulley?
 - 15. To what is a column of liquid proportional?
- 16. The Mississippi river runs from North to South, its mouth is two and one-half miles higher than its source, why does it not flow from South to North?

- 17. Give the history of the Torricellian vacuum.
- 18. What do the rising and falling of the mercury in the barometer indicate in regard to the air?
- 19. How has the pressure of the air, at the level of the sea, been determined to be fifteen pounds to the square inch?
 - 20. Give a brief description of the pneumatic railway.

PROBLEMS.

- 1-2. A body weighs one pound on the earth's surface: what would it weigh at a distance of 1000 miles above; and what at a distance 1000 miles below the surface?
- 3. A piece of iron weighed in the air 78 ounces and in water 68 ounces; find its specific gravity.
- 4. The specific gravity of gold is 19.360. If the weight of one cubic foot of water is 1000 ounces; what is the weight of an equal amount of gold?
- 5. An irregular fragment of stone that weighed 450 ounces in the air, weighed in water only 327 ounces: what was its volume in cubic inches?
- 6. A leaden ball falling from a state of rest, reached the earth in 3 seconds of time. From what height did it fall, and with what velocity did it strike the earth?
- 7. In a lever of the third class 9 feet in length; the weight is 150 pounds and the power is 3 feet from the fulcrum. What power will balance the weight?
- 8. The diameter of the wheel is 8 feet. What must be diameter of the axle, in order that a power of 50 pounds may balance a weight of 800 pounds.
- 9. A perfectly smooth inclined plane is 12 feet long and 2 feet high. With what force must a person press against an iron cannon ball weighing 1800 pounds to keep it from rolling down the plane?
- 10. The bottom of a vessel is 3 feet long and 2 feet wide, the depth of the water in the vessel is 6 feet. What is the pressure, in ounces, on the bottom?

- 11. In a hydrostatic press, the area of the piston in the pump is 2 square inches, and the area of the piston in the press is 180 square inches. What power will be necessary to exert a pressure of 27000 pounds?
- 12. If from an orifice, 16 feet below the surface of the water, in the side of a reservoir, 84 gallons of water flow out in an hour, how many gallons will flow from an orifice the same size at a depth of 64 feet below the surface in an equal space of time?

HONORARY.

- 1. What must be the horse power of a steam engine capable of lifting from a mine 120 feet deep, 3960000 pounds of coal in one-half hour?
- 2. A cannon ball was fired horizontally from the top of a tower, which was 144 feet above the level ground. The velocity of the ball on leaving the gun was 1200 feet per second. During how many seconds did the ball continue its flight and at what distance from the foot of the tower did it strike the ground? Solve this problem on the supposition that the ball meets with no resistance from the air.
- 3. A canal embankment is 150 feet long and the depth of the water pressing against it is 8 feet. What pressure, in tons, does this embankment sustain?
- 4. A body is acted upon by two forces, A and B. A acting alone would move it northward at the rate of 20 feet per second and B alone would move it eastward at the rate of 40 feet per second. Draw the parallelogram of forces, the resultant, and locate the position of the body at the end of the first second of time.
- 5. A lever of the first class is 1 metre 5 decimetres and 6 centimetres in length; the fulcrum is situated at a distance of 5 decimetres and 6 centimetres from the power, which is 1 hectogramme 1 decagramme and 2 grammes; what weight will this power balance?

Examination Papers.

COMPOSITION .-- Third Year.

composition.

THIRD YEAR.

- 1. What element forms the basis of the English Language? Name, in the order of their importance, the other elements that enter into its composition, and state the period at which each was introduced.
- 2. How are new words introduced into a language? Give the words lately introduced into our language; two that have become obsolete, and two whose signification has been changed.
- 3. Mention some advantages, and some disadvantages, pertaining to a composite language.
- 4. What is taste? What its elements and characteristics, and what its standard.
- 5. Define imagination, and show that it is the source of the pleasures of taste.
- 6. Which of the senses are capable of exciting the imagination? What can you say of novelty in its various degrees.
- 7. Mention the principal sources of the sublims. What is necessary in order that a literary production may possess this characteristic? In what writings may we find it exemplified? In aiming at the sublime, into what error are we liable to fall?
- 8. Name the principal styles used by different authors, and define them.
- 9. When does the omission of connectives succeed best? What is the general effect of connectives on a composition?
- Why do we employ Figures of Rhetoric? Name and define five figures, and illustrate by example.
- 11. What is the general character of language relating to mental objects?
- 12. Why is our language peculiarly favorable to the figure of Personification?

13. Point out the figures in the following:

"0! who can hold a fire in his hand, By thinking on the frosty Caucasus? Or cloy the hungry edge of appetite, By bare imagination of a feast?"

"The worth of a thing is best known by the want of it."

"O gentle Sleep,

Nature's soft nurse."

"The whole city came forth to meet him."

"Wisdom is gray hair to men."

"Him like the working bee in blossom dust, Blanched with his mill they found."

"Knowledge comes, but wisdom lingers."

"Shall he expire,

And unavenged? Arise, ye Goths, and glut your ire!"

14. Give rules for the use of Similes and Metaphors. Criticise the following extract:

"So doth the greater glory dim the less.

A substitute shines brightly as a king,
Until a king be by; and then his state
Empties itself, as doth an inland brook
Into the main of waters."

- 15. Define Precision. Of what three things does Harmony consist?
- 16. In what part of a sentence should the subsidiary matter be placed? Give examples of Inversion produced by there and it.
- 17. Explain any peculiar construction or any peculiarities in the use of words in the following extracts:
 - "You ought not walk upon a laboring day."
 - "I was born free as Cæsar."
 - "But ere we could arrive the point proposed."
 - "Yet if my name were liable to fear."
- "Under these hard conditions as this time is like to lay upon us."
 - 18. Correct the errors in the following:
- "If a man read little, he had need to have much cunning, to seem to know that he doth not."

- "Severe the doom that length of days impose, to stand sad witness of unnumbered woes."
- "He is only fitted to govern others who can govern himself."
- "The dash is mostly used to denote an unexpected or emphatic pause of variable length.
- "Steady application, as well as genius and abilities, are necessary to produce eminence."
 - 19. Criticise and correct the following:
- "King Richard was a man of a revengeful and cruel spirit, and a passionate lover of poetry; he died on the 8th of April, 1199, left no issue, and was succeeded by his brother John."
- "Example appeals not to our understanding alone, but to our passions likewise."
 - "I do not know what street he lives in."
 - "They descended down from the mountain."
- 20. Criticise the following extract, and express the same ideas in your own language:
- "The philosopher sheweth you the way, he informeth you of the particularities, as well as of the tediousness of the way. as of the pleasant lodging you shall have when your journey is ended, as of the many by-turnings that may divert you from your way; but this is to no man, but to him that will read him with attentive studious painfulness; which constant desire whosoever bath in him, hath already passed half the hardness of the way, and therefore is beholden to the philosopher but for the other half. Nay, truly, learned men have learnedly thought, that where once reason hath so much overmastered passion, as that the mind hath a free desire to do well, the inward light each man hath in itself is as good as a philosopher's book; since in nature we know it is well to do well, and what is well and what is evil, although not in the words of art which philosophers bestow upon us; for out of natural conceit the philosophers drew it. But to be moved to do that which we know, or to be moved with desire to know, this is the grand difficulty."

SIR PHILIP SIDNEY.

Examination Papers.

COMPOSITION --- Second Year.

Composition.

Second Year.

- 1 .- Punctuate the following sentences:
 - There are three genders the masculine the feminine and the neuter
 - The fate of Rienzi the last of the Roman tribunes shows the fickleness of an ignorant populace
 - 3. King Louis asked Joinville Would you rather be a leper or commit what the church calls a deadly sin
 - O Father Supreme protect us from the dangers of this night
 - Thy shores are empires changed in all save thee Assyria Greece Rome Carthage what are they
- 2.-What are the most common kinds of letters?
- 3.-Name and define the parts of a letter.
- Write a letter asking for a recommendation; punctuating carefully.
 - 5.—To what does variety of expression relate?
- 6.—Mention three modes of affording variety of expression.
 - 7.—Give an illustration of each of the modes named.
- 8.—Give, in your own language, a prose version of the following passage:
- Somewhat apart from the village, and nearer the Basin of Minas,

Benedict Bellefontaine, the wealthiest farmer of Grand Pré, Dwelt on his goodly acres, and with him, directing his household,

- Gentle Evangeline lived, his child, and the pride of the village.
- Stalwart and stately in form was the man of seventy winters; Hearty and hale was he, an oak that is covered with snow-
- Hearty and hale was he, an oak that is covered with snow flakes:
- White as the snow were his locks, and his cheeks as brown as the oak leaves.
- Fair was she to behold, that maiden of seventeen summers. Black were her eyes as the berry that grows on the thorn by
- the wayside,
 Black, yet how softly they gleamed beneath the brown shade
 of hor traces !
- of her tresses! Sweet was her breath as the breath of kine that feed in the
- meadows.

 When in the harvest heat she bore to the reapers at noontide
- Flagons of home-brewed ale. ah! fair in sooth was the maiden.
- Fairer was she when, on Sunday morn, while the bell from its turret
- Sprinkled with holy sounds the air, as the priest with his hyssop
- Sprinkles the congregation, and scatters blessings upon them, Down the long street she passed, with her chaplet of beads and her missal.
- Wearing her Norman cap, and her kirtle of blue, and the ear-rings
- Brought in the olden time from France, and since, as an heirloom,
- Handed down 'from mother to child, through long generations.
 - 9.—What is a perfect style?
 - 10.—Define Tautology.
 - 11.—What sentences are generally most effective? 12.—Define Diction.
 - 13.—What is the difference between Purity and Propriety?
- 14.—Name, define, and give an example of, each class of words that should be avoided.
 - 15.-What is gained by a study of synonyms?
 - Construct a periodic sentence.

- 17.—Give the principal and subordinate rules for Strength.
- 18.—Give the general rule for Emphasis.
- 19.—Correct the following sentences, and state the fault in each:
 - 1. He not only plays base ball, but cricket also.
 - 2. He returned back home again last week.
 - 3. The boy had a recommend from Mr. Smith.
 - 4. Scott is an author whom every one is delighted with.
 - 5. It was considered a preventative of disease.
 - 6. Either of these inventions will secure him a fortune.
 - 7. St. Augustine lived holily and godlily.
 - 8. This great and good man died on the 17th of September, 1863, leaving behind him the memory of many noble actions, and a numerous family, of whom three were sons; one of them, George, the eldest, heir to his father's virtues, as well as to his principal estate in Cumberland, where most of his father's property was situated, and shortly afterward elected member for the county, which had for several generations returned his family to serve in Parlaiment.
 - This monument was erected to the memory of John Smith, who was shot, as a mark of affection, by his brother.
- The soldiers seemed to enthuse at this intelligence.
 Write a composition of at least twenty lines on Heroes and Heroines.

Examination Papers.

ANABASIS.

ANABASIS

TRANSLATE-

- 1.— Έντεῦθεν ἐξελαύνει σταθμοὺς δύο, παρασάγγας δέχα, είς Τυριαζον, πόλιν οἰχουμένην · ἐνταῦθα ἔμεινεν ἡμέρας τρεζς. Και λέγεται δεηθήναι ἡ Κίλισσα Κύρου, ἐπιδεῖζαι τὸ στράτευμα αὐτῆ. Βουλόμενος οὖν ἐπιδεῖζαι, ἐξέτασιν ποιεῖται ἐν τῷ πεδίψ τὰν 'Ελλήνων χαι τῶν βαμβάρων 'Εχκέλευσε δὲ τοὺς "Ελληνας, ὡς νόμος αὐτοῖς εἰς μάχην, οὕτω ταχθήναι και στῆναι, συντάξαι δὲ ἔκαστον τοὺς ἑαυτοῦ. 'Ετάχθησαν οὖν ἐπὶ τεττάρων · εἰγε δὲ τὸ μὲν δεξιὸν Μένων και οἱ σὸν αὐτοῦ τὸ οὰ ἐνεὐνυμον Κλέαργος και οἱ ἐκείνου, τὸ δὲ μέσον οἱ ἀλλοι στρατητοί.
- 2.— Ταῦτα οἱ στρατηγοὶ Κύριμ ἀπήγγελλον ὁ οἱ ὁπέσγετο, ἀνδρὶ ἑχάστιμ διώσειν πέντε ἀργυρίου μνᾶς, ἐπὰν εἰς Βαθυλῶνα ἦχωσι, χαὶ τὸν μισθὸν ἐντελῆ, μέγρι ἄν χαταστήση τοὺς Ἑλληνας εἰς Ἰωνίαν πάλιν. Τὸ μὲν δὴ πολὺ τοῦ Ἑλληνικοῦ οὕτως ἐπείσθη. Μένων οὲ, πρὶν δῆλου εἰναι, τἱ ποιήσουσιν οἱ ἀλλοι στρατιῶται, πότερον ἔψονται Κύριμ ἢ οῦ, συνέλεξε τὸ αὐτοῦ στράτευμα χωρίς τῶν ἄλλων, χαὶ ἔλεξε τάδε.
- 3.— 'Αχούσας ταῦτα ἔλεξεν ὁ Κῦρος. " 'Αλλ' ἔστι μὲν ἡμῖν, ἢ ἀνδρες, ἡ ἀρχὴ ἡ πατρώα, πρὸς μὲν μεσημβρίαν, μέχρι οἱ διὰ χαθμα οἱ δὐνανται οἰχεῖν ἄνθρωποι · προς δὲ ἀρχτον, μέχρι οἱ διὰ χειμῶνα · τὰ δ' ἐν μέσψ τοὐτων πάντα σατραπεύουσιν οἱ τοὺ ἐμοῦ ἀδελφοῦ φίλοι. "Ην δ' ἡμεῖς νιχήσωμεν, ἡμῶς δεῖ τοὺς ἡμετέρους φίλους τοὑτων ἐγχρατεῖς ποιήσαι. "᠘στε οὺ τοῦτο δέδοιχα, μὴ οὺχ ἔχω ὅ τι δῶ ἔχάστψ τῶν φίλων, ἀν εῦ γένρται, ἀλλὰ μὴ οὺχ ἔχω (χανοὺς, οἱς δῶ. ' Ἰ μῶν δὲ τῶν ' Ελλήνων χαὶ στέφανον ἔχάστψ χιυσοῦν δώσω.
- Καὶ ἤδη τε ἢν ἀμφὶ ἀγορὰν πλήθουσαν, καὶ πλησίον ἢν ὁ σταθμὸς ἔνθα ἔμελλε καταλύειν, ἦνίκα Πατηγύας ἀνὴρ

Πέρσης των άμφὶ Κύρον πιστών, προφαίνεται ελαύνων άνὰ κράτος (δρούντι τῷ ἴππψ · καὶ εὐθὺς πῶσιν, οῖς ἐνετύγχανεν, ἔβὸα καὶ βαρβαρικῶς καὶ 'Ελληνικῶς, ὅτι βασιλεὺς σὺν στρατεὑματι πολλῷ προσέρχεται, ὡς εἰς μάχην παρεσκευαμένος. *Ενθα δὴ πολὺς τάραγος ἐγένετο · αὐτίκα γὰρ ἐδόκουν οῖ Ελληνες καὶ πάντες δὲ, ἀτάκτοις σφίσιν ἐπιπεσεῖσθαι.

- 6.—It seems necessary to march as rapidly as we can. It seemed to us, that we ought to consider, how we could march most securely. We must pursue forthwith.
- 7.—I must do everything, that I may never be in the power of the king. Virtue should be pursued by all. We ought to say what we know.
- 8.—The Macronian leaps both high and nimbly, and flourishes his sword. After this, the Thracians went out, singing the Sitalcas. But they had received no harm. They bound the robber; and having fastened him beside the horses, drove him on with both hands tied behind.
- 9.—Give the analysis of ἐπιδεῖζαι, δεηθηναι and ἐτάχθησαν.
- 10.—(a) Write the nude form of ἀχούσας. (b) Derive χαῦμα and χαῦσις, and give the distinction between them, and show their relation to the words caustic and caucus. (c) Where are ἀπήγγελλον, ὅπέσγετο, ἦχωσι and χαταστήση (in 2) made? (d) Give the rule for the mode of ἦχωσι.
- 11.—Write some of the derivative terminations that are suffixed to verbal stems to form nouns denoting (a) the Action, (b) Effect or Object, (c) Doer, (d) Place, Instrument, &c., and illustrate (a) and (b) by one or more derivative examples in each, giving either Greek or English words, or both.

Examination Papers.

GREEK LESSONS.

GREEK LESSONS.

Translate—

- 1.—'Ο δεσπότης έχάστης τῆς οἰχίας. Περὶ δὲ τοῦ χαλῶς ἀποθνήσχειν ἀγωνίζονται. Διὰ μέσου δὲ τοῦ παμαθείου. Ἐπὶ τὴν ἡμετέραν χώραν ἔρχεσθε. Οἱ τοῦ ἐμοῦ ἀδελφοῦ φίλοι. 'Απ' ἐχείνης τῆς ἡμέρας. Παύομαι ἐχείνης τῆς ὁιανοίας. 'Εχ τῆσδε τῆς γωρας.
- 2—Προέτρεχεν ἀπὸ τοῦ δένδρου. Προσέτρεχον δύο νεανίσκω. Μετεπέμπετο τὸν Κλέαρχον. Καὶ ἄλλοι ἐπὶ τάς οἰχίας ἀνέβαινον. Κατέβαινεν εῖς πεδίον, 'Επεὶ δ' ἡμέρα ὑπέφαινεν ἐπορεύοντο σιγη. Προσέβαλλον πρὸς το χωρίον Ο΄ στρατιῶται ἀπέλειπον αὐτούς. Ο΄ δὲ ἄδιαοι ἐπεβούλευον. Καὶ προσέβαλλον πρὸς τοὺς ὁπλίτας ἀσψαλῶς.
- 3.—Αὐτὸς ἐπεβούλευε διαβάλλειν με πρὸς ὑμῶς. Δέομαι ὑμῶν στρατεύεσθαι σὺν ἐμοί. Σγολή τοῖς πολεμίοις ληίζεσθαι καὶ δικαίως ἡμῖν ἐπιβουλεύουσιν, ἔγομεν γάρ τὰ ἐκείνων. Καὶ νῶν ἔξεστιν ὑμῖν πιστὰ λαβεῖν παρ' ἡμῶν. Ὁ αὐτὸς ὑμῖν στόλος ἐστὶ καὶ ἡμῖν. Μὴ ἀναμένωμεν ἀλλους ἐφ' ἡμῶς ἐλθεῖν.
- 4.— 'Ο Κύρος σὺν τοῖς περὶ αὐτὸν ἀρίστοις καὶ εὐδαιμονεστάτοις. '' Αξιοί εἰσι τὰ ἔσχατα παθεῖν. Τὰ βέλτιστα ἔσμβουλεύειν. Πρώτον μὲν γὰρ καὶ μέγιστον, οί θεῶν ἡμῖς ὅρκοι κωλύουσι πολεμίους εἶναι ἀλλήλοις. Πλησιαίτατος γάρ ἡν.
- 5.—'Εγὰ ὑφ' ὑμῶν τιμῶμαι. 'Ορᾳ ἀετόν. 'Ημεῖς γε νιχῶμεν. Πολλαπλασίους ὑμῶν αὐτῶν ἐνιχᾶτε σὺν τοῖς θεοῖς. Τᾳ Κλεάμγφ ἐβόα. 'Εβόα καὶ βαρβαριχῶς καὶ 'Ελληνιχῶς. 'Εντεῦθεν ἐπειρῶντο εἰσβάλλειν εἰς τὴν Κιλικίαν ἡ δὲ εἰσβολὴ ἡν ὁδὸς ἀμαξιτὸς, ὁρθία ἰσγῦρῶς. Ηειράσθω νικῷν. 'Κλεγε τῷ Σεύθη ὅτι ἐν πονηροῖς τόποις σχηνῷεν, καὶ πλησίον εἶεν οἱ πολέμαι.

- 6.—Let us take counsel. Let them learn both to rule and to be ruled. Clearchus, if you wish, speak. But, if they will, let them remain. Let Proxenus march. Clearchus is not willing to jowrney with Ariæus. Let us not march with Cyrus. O Lacedæmonians, let us consult together. Let them march if they will.
- 7.—Phrygia produces barley, wheat, sesame, millet, and panic. Mithridates writes a letter, and sends it to Cyrus. They bring five wagon-loads of large stones. Seuthes has no soldiers. Thence he advances through Phrygia five stations, thirty parasangs. From sea to sea. Soldiers, do not approach, Abrobelmes comes with thirty robbers.
- 8.—But on the fourth day the trumpeters gave a signal. Thereupon the heads of the robbers are cut off. If indeed the deity should so direct. Mithridates flies at full speed, and throws himself into the sea. The truce remains. The soldiers wonder at the truce.
- 9.—Let us give the signal, for it is now late. It is growing late. And when it was now about sunset, suddenly the barbarians appear upon the plain. The sun is setting. For it was now towards day.
- 10.—The rivers flow through the plain of Cilicia into the sea. The river was called Mæander. The barbarians call the river Marsyas. The soldiers ask Seuthes for money. Ask Cyrus for your pay. Ask Cyrus for our pay. They endeavored to rob us of our pay. Soldiers let us bring stones, and erect a mound.
- 11.—Give English derivatives from πολύς, ἀχοστέλλω, ἀθλου, ἀχούω and ἶππος, and give the derivation of telephone, helianthus, chrysanthemum, diabolus, and Mesopotamia. State the etymon, or radical force, of each word.
- 12.—Explain the difference between accent and ictus; give the rule for placing the latter, and state what objection there is to placing both always over the same syllable.

Examination Papers.

CICERO.

CICERO.

- 1. What was the state of affairs that led to the delivery of the oration for the Manilian Law; where was it delivered; at about what time; how old was the orator then, and what was the result of his advocacy of the bill?
- 2. State the chief points in the exordium of the oration.

TRANSLATE:-

- 3. Causa quae sit, videtis: nune, quid agendum sit, considerate. Primum mihi videtur de genere belli, deinde de magnitudine, tum de imperatore deligendo, esse dicendum. Genus est belli ejusmodi, quod maxime vestros animos excitare atque inflammare ad persequendi studium debeat; in quo agitur populi Romani gloria, quae vobis a majoribus, quum magna in rebus omnibus, tum summa in re militari, tradita est: agitur salus sociorum atque amicorum, pro qua multa majores vestri magna et gravia bella gesserunt: aguntur certissima populi Romani vectigalia et maxima; quibus amissis, et pacis ornamenta et subidia belli, requiretis: aguntur bona multorum civium, quibus est a vobis et ipsorum et rei publicae causa consulendum.
- 4. Quo tandem igitur animo esse existimatis ant eos, qui vectigalia nobis pensitant, ant eos, qui exercent atque exigunt, quum duo reges cum maximis copiis propter adsint? quum una excursio equitatus perbrevi tempore totius anni vectigal auferre possit? quum publicani fa-

milias maximas, quas in saltibus habent, quas in agris, quas in portubus atque custodiis, magno periculo se habere arbitrentur? Putatisne vos illis rebus frui posse, nisi eos, qui vobis fructui sunt, conservaritis, non solum, ut antea dixi, calamitate sed etiam calamitatis formidine liberatos?

- 5. Est hace divina atque incredibilis virtus imperatoris. Quid ceterae, quas paulo ante commemorare coeperam, quantae atque quam multae sunt! Non enim bellandi virtus solum in summo ac perfecto imperatore quaerenda est; sed multae sunt artes eximiae, hujus administrae comitesque virtutis. Ac primum quanta innocentia debent esse imperatores! quanta deinde in omnibus rebus temperantia! quanta fide! quanta facilitate! quanto ingenio! quanta humanitate! Quae breviter, qualia sint in Cn. Pompeio, consideremus. Summa enim omnia sunt, Quirites, sed ea magis ex aliorum contentione quam ipsa per sese cognosci atque intelligi possunt.
- 6. At enim ne quid novi fiat contra exempla atque instituta majorum. Non dicam hoc loco, majores nostros semper in pace consuetudini, in bello utilitati paruisse; semper ad novus casus temporum novorum consiliorum rationes accommodasse: non dicam, duo bella maxima, Punicum atque Hispaniense, ab uno imperatore esse confecta, duasque urbes potentissimas, quae huic imperio maxime minabantur, Carthaginem atque Numantium, ab eodem Scipione esse deletas; non commemorobo, nuper ita vobis patribusque vestris esse visum, ut in uno C. Mario spes imperii poneretur, ut idem cum Jugurtha, idem cum Teutonis bellum administraret: in ipso Cn. Pompeio, in quo novi constitui nihil vult Q. Catulus, quam multa sint nova summa Q. Catuli voluntate constituta, recordamini.
- 7. See how much more odius [teter] a tyrant Verres was to the Syracusans, than any one of those who preceded [superiorum]; since they ornamented [orno] the temples of the gods, he even took away [sustollo] their [deorum]

monuments and decorations [ornamentum]. C. Gracchus deserves to be read by youth, if any [si quisquam] other (deserves it,) for he is capable [possum] not only of sharpening, but of nourishing the understanding [ingenium]. Virtue has nothing grand [magnificus] in it, if it has any thing venal. Alexander halted [consisto] at Bahylon longer [diu] than any where [usquam]; nor did any place more injure [noceo] military discipline. There is not any one of any nation, [gens] who may [possum] not arrive [pervenio] at virtue, having [nactus] nature (as) his guide. Would any city have patience with [fero] the proposer [lator] of a law of this kind [istius], that a son or grandson should be condemned, if his father or grandfather had done wrong [delinquo]?

8. a. Give the rule for the mood of sit and agendum sit, debeat and requiretis (in 3).

b. What does animo (in 4) limit?

c. Give the composition and the principal parts of auterre.

d. Point out six or more Latin derivatives in the fol-

lowing sentence:

"All the intellectual part of our speech, all that concerns our highest spiritual and temporal interests, is of alien birth—either Latin or Greek—and only the merest machinery of grammar has been derived from a native source," and even the grammatical terms are Greek or Latin by birth.

Examination Papers.

VIRGIL.

Virgil.

- 1. Give the analysis and derivation of the English-Latin word, accent, state what English-Greek word it translates, give its etymon, or radical signification, and explain the marked difference in its application to English words and to ancient Latin words.
 - Give the analysis and etymon of hexameter.
 What is a hexameter verse?
 Derive dactyl and spondee.
- 3. Who was Virgil, when did he live, and what did he write?
 - 4. What is the subject of the first book of the Æneid?
- Scan the following verses and point out a synaloepha and an ecthlipsis.

Litora; multum ille et terris jactatus et alto, Vi superum, sævæ memorem Junonis ob iram; Multa quoque et bella passus, dum conderet urbem.

Translate:

6. Defessi Aeneadac, quae proxima litora, cursu Contendunt petere, et Libyeæ vertuntur ad oras. Est in seccessu longo locus; insula portum Efficit objectu laterum, quibus omnis ab alto Frangitur inque sinus scindit sese unda reductus; Hinc atque hinc vastae rupes geminique minantur

In coelum scropuli, quorum sub vertice late Aequora tuta silent; tum silvis scena coruscis Desuper horrentique atrum nemus imminet umbra.

- 7.

 Hace ait, et Maia genitum demittit ab alto,
 Ut terrae, utque novae pateant Karthaginis arces
 Horspitio Teucris, ne fati nescia Dido
 Finibus arceret. Volat ille per aëra magnum
 Remigio alarum, ac Libyae citus adstitit oris.
 Et jam jussa facit, ponuntque ferocia Poeni
 Corda volente deo; in primis regina quietum
 Accipit in Teucros animum mentemque benignam.
- 8.
 Tum Breviter Dido, voltum demissa, profatur:
 Solvite corde metum, Teucri, secludite curas.
 Res dura et regni novitas me talia cogunt
 Moliri, et late fines custode tueri.
 Quis genus Aeneadum, quis Trojae nesciat urbem,
 Virtutesque virosque, aut tanti incendia belli?
 Non obtunsa adeo gestamus pectora Poeni,
 Nec tam aversus equos Tyria Sol jungit ab urbe.
- 9.

 Jamque ibat dicto parens et dona Cupido
 Regia portabat Tyriis, duce laetus Achate.
 Quum venit, aulaeis jam se regina superbis
 Aurea composuit sponda mediamque locavit.
 Jam pater Aeneas et jam Trojana juventus
 Conveniunt, stratoque super discumbitur ostro.
 Dant famuli manibus lymphas, Cereremque canistris
 Expediunt, tonsisque ferunt mantelia villis.
- 10. Govern objectu and silvis (in 6), Maia (in 7), and dicto (in 9):

Write the principal parts of frango and scindo.

Derive and give the etymon of latebra, abscind, lateral, vertical, deign, condign, urbanity, quorum, primer, and victuals.

Examination Papers.

CÆSAR.

GÆSAR.

- I. (a) In what year was Cæsar born? Where? Where was he educated? At what age did he serve his first military campaign? Name the countries in which he carried on military operations. In what year did he die? Under what circumstances?
- (b.) In what year did the campaign in Gaul begin? End? Give the modern names of the countries in which the campaign was carried on. How large an army did Cæsar have? What wars are described in the first book?

II. Translate:-

Apud Helvetios longe nobilissimus fuit et ditissimus Orgetorix. Is, M. Messala et M. Pisone consulibus, regni enpiditate inductus conjurationem nobilitatis fecit et civitati persuasit, ut de finibus suis cum omnibus copiis exirent: perfacile esse, quum virtute omnibus praestarent, totus Galliae imperio potiri. Id hoc facilius persuasit, quod undique loci natura Helvetii continentur: una ex parte flumine Rheno latissimo atque altissimo, qui agrum Helvetium a Germanis dividit, altèra ex parte monte Jura altissimo, qui est inter Sequanos et Helvetios; tertia lacu Lemanno et flumine Rhodano, qui provinciam nostram ab Helvetiis dividit.

- (a.) Parse civitati.
- (b.) In what mood is exirent? Give the rule.
- (c) What is the subject of esse?
- (d.) In what case and construction is imperio?

III. Translate:-

Caesar, quod memoria tenebat, L. Cassium consulem occīsum exercitumque ejus ab Helvetiis pulsum'et sub jugum missum, concedendum non putābat; neque homines inimīco anīmo, data facultāte per provinciam itinēris faciandi, temperatūros ab injuria et maleficio existimābat; tamen, ut spatium intercedēre posset, dum milites, quos imperaverat, convenīrent, legatis respondit, diem se ad deliberandam sumptūrum: si quid vellent, ad Idus Aprilis reverterentur.

- (a.) In what case and construction is Cassium?
- (b.) In what mood is convenirent? Give the rule.
- (c.) Parse se.
- (d.) Express the following dates by the Roman calendar: fourth of July; ninth of October; seventeenth of March; twenty-fifth of December.

IV. Translate:-

Caesări renuntiatur, Helvetiis esse in animo, per agrum Sequanorum et Aeduorum iter in Santonum fines facere, qui non longe a Tolasatium finibus absunt, quae civitas est in provincia. Id si fieret, intelligebat, magno cum periculo provinciae futurum, ut homines bellicosos, populi Romāni inimīcos locis patentibus maximēque frumentariis finitimos habēret. Ob eas caussas ei munitioni, quam fecerat, T. Labienum legătum praefecit: ipse in Italiam magnis itineribus contendit, duasque ibi legiones conscribit, et tres, quae circum Aquileiam hiemābant, ex hibernis edūcit et, qua proxīmum iter in ulteriorem Galliam per Alpes erat, cum his quinque legionībus ire contendit.

- (a.) In what case and construction is Helvetiis?
- (b.) What is the subject of esse?
- (c.) Parse munitioni.
- (d.) Compare the adjectives proximum and ulteriorem.
- V. Translate:-

Eodem die ab exploratoribus certior factus, hostes sub monte consedisse milia passuum ab ipsius castris octo

qualis esset natūra montis et qualis in circuītu ascensus, qui cognoscērent, misit. Renunciātum est, facilem esse. De tertia vigilia T. Labiēnum legātum pro praetēre cum duābus legionībus et his ducībus, qui iter cognovērant, summum jugum montis ascendēre jubet: quid sui consilii sit, ostendit. Ipse de quarta vigilia eōdem itinēre, quo hostes iērant, ad eos contendit equitatumque omnem ante se mittit. P. Considius, qui rei militāris peritissīmus habebātur, et in exercītu L. Sullae et postea in M. Crassi fuērat, cum exploratorībus praemittītur.

- (a.) In what mood is esset? (five the rule.
 - (b.) In what case and construction is consilii?
- (c.) In what case and construction is rei?
- (d.) Give the division of the night into vigiliae.

VI. Translate into Latin:

Hope gives strength.
Experience is the best master.
Let industry be praised.
Icy winter comes.

Examination Papers.

LATIN GRAMMAR.

Latin Grammar

١.	Decline	a	noun	in	each	of	the	declens	sions	:

- 1st.-
- 2d.—
- 3d.—
- 4th.— 5th.—
- 2. What is the gender of Latin nouns of the first, second, third, fourth and fifth declensions?
 - 3. Describe the following forms:
- (a) sceptra; (b) tribui; (c) formidinem; (d) nimbe; (e) fœdus; (f) aras; (g) liti; (h) spem; (i) carnibus; (j) ossem; (k) orium.
- 4. What are the roots and the derivations of c, e, g, i, j and k?
- 5. To what two rules is (c) an exception? To what is (b) an exception? To what are (j) and (k) exceptions?
 - 6. Change into English:
 - (a) civis malus.
- (d) hac lege.
- (b) ager pauper.
- (e) deus sancte.
- (c) unus filia.
- (f) judex clemens.
- 7. Compare malus, pauper and clemens.
- 8. Decline unus in the singular number; deus and filia in the plural number.
 - 9. Give the roots and derivatives of ager, lege and judex.
- 10. What part of speech is hac? of what class? What are its forms in the accusative case, singular and plural number?

- 11. Name the personal pronouns, the relative, the intensive. How are the possessives derived?
- 12. What are the moods of a Latin verb? Give the two nees of the perfect tense. Which are the compound tenses of the passive voice and how are they formed?
- 13. What are the personal endings of the active voice? of the passive voice?
- 14. How are the regular conjugations distinguished? What are the principal parts of habeo, pugno, fulgeo, do, capio, dico, venio, sentio:
- 15. Describe the following forms:
 ornantur, sint, viderunt, monuerat, amamini, recti sunt,
 audiretur.
 - 16. What parts of speech are called particles? Why?
- 17. Give the terminations of the Infinitive mood and the participles, active and passive voice, in all the conjugations.
- 18. Write a synopsis of capto, in the first root active; habeo, in the second root active; scribo, in the first root passive; venio, in the third root passive.
- 19. Divide and accent: patricius ludere, doleo, oblecto, lucrum, eripi, agricola, gigas.
- 20. Give two rules of accent; and a different rule of syllabication for every word.
 - 21. Define quantity.
 - 22. What is the secondary accent?
- 23. When is the quantity of a syllable said to be common?
- 24. When the vowel in a polysyllable is common, what is the place of the accent?
 - 25. What words have three accentual places?
- 26. Syllabicate radius, palladium, stereoscope, fallacia and apparātus; and give the rule of your grammar for the sound of the penultimate vowel of the last.
- 27. What is the gender of the last word in the following sentence: He is entitled to the appellation of gentleman? Why?

28. What is grammatical gender and on what does it depend? 29. Derive and give the etymon of doctor, scribble, scripture, habit, supervene, patrimony, egotist, omnibus, filial, paternal and sororal. 30. What parts of a verb may be distinguished by the personal terminations?

ROCHESTER FREE ACADEMY.

Examination Papers.

GERMAN---Third Year

DECEMBER, 1877.

GERMAN--Third Year.

T.

Schreibe einen Auffat über Blumen.

II.

Schreibe einen Brief an Deine Eltern.

III.

Schreibe zwölf Fragen und Antworten.

IV.

Beantworte die folgenden Fragen :

- 1. Bo und wie ftarb die Königin Maria Stuart?
- 2. Ber find die beiden größten Dichter Deutschland's?
- 3. Bas ift bas gefchichtliche Ende ber Jungfrau von Orleans?
- 4. Der wievielte Bräfibent ber Bereinigten Staaten von Nord Umerita ift ber jetige?

V.

lleberfete :

Oank, Oank diesen freundlich grünen Bäumen, Die meines Kerkers Mauern mir verstecken! Ich will mich frei und glücklich träumen, Warum aus meinem süßen Wahn mich wecken? Umfängt mich nicht der weite Hinmelsschooß? Die Blick, frei und fessellen, Krumen: Oort, wo die grauen Nebelberge ragen,

Fängt meines Reiches Grenze an, Und biefe Wolfen, die nach Mittag jagen, Sie fuchen Frankreiche fernen Ocean. Gilende Bolfen! Segler ber Lüfte! Ber mit euch manberte, mit euch fchiffte! Gruget mir freundlich mein Jugendland! 3ch bin gefangen, ich bin in Banben, Ach, ich hab' feinen andern Gefandten! Frei in ben Luften ift eu're Bahn. Ihr feid nicht diefer Königin unterthan.

ROCHESTER FREE ACADEMY.

Examination Papers.

GERMAN READER.

DECEMBER, 1877.

GERMAN READER.

I.

Render the following phrases in German:

- 1. To keep ones word.
- 2. To beg ones pardon.
- 3. To render assistance.
- 4. To come to ones assistance.
- 5. To ruin.
- 6. To render account.
- 7. To ask for advice.
- 8. To bid defiance.
- 9. To fall to ones lot.
- 10. To have compassion.

IT.

Translate the following sentence without using the verb. Hiding the dagger under the mantle.

III.

When is the dative case governed by nouns?

IV.

How is the genitive absolute used in German?

- a.
- b.
- c,
- d.

v

What is said about the repetition of the definite article?

VΙ

What does the nominative express?

VII.

In what case are nouns put, when denoting indefinite time?

VIII.

What preposition does the word erflüren require?

IX.

When should answers be complete sentences?

X.

Une treibt nicht die gebieterische Noth Bu beinen Fiißen ; nicht als Flebenbe Erfcheinen wir vor bir .- Blid um bich her! In Afche liegt bas engelländ iche Lager, Und eure Todten beden das Gefild. Du hörft der Franten Rriegedrommete tonen ; Bott hat entschieben, unfer ift der Gieg. Des ichonen Lorbeers frifch gebrochnen Zweig Sind wir bereit mit unferm Freund zu theilen. -D, tomm berüber! Edler Flüchtling, fomm Berüber, mo bas Recht ift und ber Siea. 3ch felbft, die Gottgefandte, reiche bir Die schwefterliche Sand. Ich will dich rettend Berübergiehn auf unfre reine Geite .-Der Himmel ift für Frankreich. Seine Engel-Du fiehft fie nicht-fie fechten für den Ronig ; Sie alle find mit Lilten geschmückt. Lichtweiß, wie biese Fahn', ift unfre Sache ; Die reine Jungfrau ift ihr feusches Sinnbild.

ROCHESTER FREE ACADEMY.

Examination Papers.

GERMAN GRAMMAR.

DECEMBER, 1877.

GERMAN GRAMMAR.

- . What is an Umfout?
- 2. Where is the past participle placed in compound tenses?
 - 3. Give the formation of Feminine Appellations.
 - .4. Decline the definite article.
 - 5. Decline the indefinite article.
 - 6. Translate: I do not praise.
 - 7. What is implied by muffen and follen?
 - 8. Write out the German Prepositions governing the
 - a. Genitive.
 - b. Dative.
 - c. Accusative.
 - d. Dative & Accusative.
 - 9. How is, What has became of, renderd in German?
 - 10. Decline Jefus Chriftus.
 - 11. Decline Amerifa., without the article.
 - 12. Decline, Der Raifer Wilhelm.
 - 13. Write out six nouns with double gender.
 - 14. How are capital letters used in German?
 - 15. When do adjectives remain unchanged?
- 16. How are compound nouns governed in their declension?
 - 17. Conjugate Saben, Sein and Berben in the
 - a. pluperfect.
 - b. first future.
 - c. second future.
 - d. first conditional.

Translate :-

- 18. We shall have the coat made by our tailor.
- 19. Translate :- Sie werben bas Saus verfaufen muffen,
- 20. Give the principal parts of
 - a. Laffen.
 - b. Müffen.
 - c. Sollen.
 - d. Dürfen. e. Mögen.
 - f. Bollen,

 - g. Können.
 - h. Werben.
 - i. Gein.
 - j. Haben.

ROCHESTER FREE ACADEMY.

EXAMINATION PAPERS.

CIVIL GOVERNMENT.

CIVIL GOVERNMENT.

- 1. What was the Confederation?
- 2. By whom were the delegates to Congress under the Confederation chosen?
 - 3. How was the Constitution ratified and established?
 - 4. Where are the legislative powers vested?
 - 5. To what age shall the President have attained?
 - 6. By whom is the President chosen?
 - 7. How shall vacancies in the Senate be filled?
- 8. In the case of the death or removal of the President, the Vice-President, and the President pro tempore of the Senate, who shall act as President?
- 9. Where is the sole power to originate impeachments vested?
 - 10. Who shall preside when the President is tried?
 - 11. Where shall bills for raising revenue originate?
- 12. Explain the first process by which a bill may become a law.
- 13. For what length of time may a patent right be granted and renewed?
 - 14. How may the Constitution be amended?
 - 15. What is the last amendment to the Constitution?
 - 16. What is treason against the United States?
 - 17. What is appellate jurisdiction?
 18. What is a bill of attainder?
 - 19. Who can not be Presidential electors?
 - 20. What is an ex post facto law?
 - 2!. Name the officers of the President's Cabinet.
- 22. How may a bill vetoed by the President become a law?
 - 23. By whom are the electoral votes counted?
 - 24. Define "high seas."
 - 25. Name the Courts of the State of New York.

ROCHESTER FREE ACADEMY.
EXAMINATION PAPERS.
Modern History.
JUNE, 1877.

MODERN HISTORY.

EUROPE.

- 1. Which was the most powerful nation of Europe in the sixteenth century? Can you tell when this position was lost? Who was king at this time? What was the extent of his empire?
- 2. Which is the first state in importance at the present time? By whom governed?
 - 3. What is meant by the term Balance of Power?
- 4. What contrast is observed between the method of progress in France and in England?
- 5. Give the names of the house that laid the foundation of England's greatness.
- 6. Who were the foremost men of letters in Elizabeth's reign? What scheme was planned by Spain to destroy her power?
- 7. Who was the first of the Stuarts in England? What was the mistake of this line of kings? Which one forfeited his life to his policy?
- 8. During whose reign did the American colonies rebel? Describe the social condition of England after the Restoration.
 - 9. Give a sketch of the Commonwealth.
- 10. What was the issue at the beginning of the Thirty-Years' War? Where was the battle gound? Where and when was it terminated?

- 11. What heroic kings from the north joined in it? Which side did Richelieu take?
- 12. To what House did Louis Fourteenth belong? How long did he reign? What was the true character of his age?
- 13. How did the war of the Spanish succession originate? What great English general humbled France? What was secured by it? What treaty ended it?
 - 14. Give the great events of the eighteenth century.
- 15. Give an account of Prussia during Frederick the Great.
- 16. When does Russia figure in history? What conduct and qualities mark Peter the Great? Name his successors to the present Emperor.
 - 17. The French Revolution.
- State: a.—Its cause. b.—Leaders of the peoples' factions. c.—Fate of the royal family. d.—Climax of horrors.
- 18. Give a summary of the campaigns of Napoleon Bonaparte. Where and when, his defeat?
- 19. Who was Napoleon III? When did he declare war against Prussia? What was the result?
- 20. Name four of the greatest generals and four of the ablest statesmen of modern Europe.
- 21. What is the present political situation of France, of Italy, and of Switzerland?
- 22. How many states form the German Confederation? What is the character of the government?
 - 23. Tell what you know of the present Eastern war.

ROCHESTER FREE ACADEMY.

EXAMINATION PAPERS.

PERSPECTIVE DRAWING.

PERSPECTIVE DRAWING.

- 1. What constitutes the field of vision?
- 2-8. Define the following terms used in perspective drawing: horizontal line; station point; center of vision; line of direction; picture plane; ground plane and picture line.
- 9-10. Define vanishing, and measuring, or distance points.
- 11. Where do lines, at right angles to the picture plane, have their vanishing point?
- 12-13. Name and describe the two principal kinds of perspective drawing.
- 14. What kind of triangle will the lines, drawn from the eye to the extremities of the diameter of the field of vision, form?

PROBLEMS.

The scale to be used in the drawings is one foot to the inch.

- 1. Represent a horizontal line six feet in length?
- 2. The observer is 3 feet from the center of the HL; locate the center of vision at its proper place.
 - 3. Locate the station point.
 - 4. Draw the line of direction.
 - 5. Draw the picture line 1½ feet below the H L.
- 6-7. Find the two distance points and locate the vanishing point for parallel perspective.
- 8. Reconstruct the above work; and on the picture plane represent the perspective position of a dot (A), situated

on the ground plane, $1\frac{1}{2}$ feet to the left of the line of direction, and 2 feet back of the picture plane.

- 9. On the same plane, 1 foot to the right of L of D, represent a line (AB), 2 feet in length, on the ground. This line touches the picture and is perpendicular to it.
- 10. Reconstruct the preliminary lines, as above; and represent in parallel perspective a square, measuring I foot on each side, situated on the ground plane, ½ foot to the left of the line of direction and against the picture plane.
- 11. One-half foot to right of the L of D, construct a square of an equal size and similarly situated; upon this square construct a cube.
- 12. Reconstruct the preliminary lines as above, and the square as drawn in No. 10; on this square construct a pyramid 3 feet in height.
- 13. To the right of the L of D, reconstruct the cube as in No. 11; on this cube construct a pyramid 2 feet in height.
- 14. Draw a H L 7 feet in length; locate the C V, 3 feet from the right end of the H L, and the S P, 3 feet from this point; draw the L of D, and the P L, 1½ feet below the H L.
- 15. Find the V P, of a line, situated on the ground plane, that forms an angle of 40° with the picture plane to the left of the L of D; also find the M P, of this V P.
- 16. Find the V P, and M P, of a line, situated on the ground plane, that forms an angle of 50° with the picture plane to the right of the L of D.
- 17. Reconstruct the work of No. 16; and on the picture plane represent a square whose dimensions are 1 foot on each side, situated on the ground plane, one corner resting against the picture plane one foot to the left of the L of D, the side of the square to the right forming an angle of 50°; and the side to the left an angle of 40° with the picture plane.
 - 18. On this square construct a cube.
- 19. Reconstruct the above preliminary work and square; on which, construct a pyramid three feet in height.

ROCHESTER FREE ACADEMY.

EXAMINATION PAPERS.

BOTANY

BOTANY

- 1. Name a plant's organs of vegetation.
- 2. Name a plant's organs of reproduction.
- 3. State the functions of the root.
- 4-5. Describe the two important functions of the leaves.
- 6. What is elaborated sap?
- 7-8. Describe the essential organs of a flower.
- 9. When does an ovule become a seed?
- 10. Of what does the embryo of a seed consist?
- 11-12. Describe the life of an annual and also that of a biennial.
- 13. How could you recognize an exogenous plant from a section of its stem.
- 14. How could you recognize an endogenous plant from its leaves.
- 15. How does a pinnately veined differ from a palmately veined leaf?
 - 16. How does a simple differ from a compound leaf?
- 17-20. Describe the four ways in which leaves are arranged on the stem.
- 21-23. When is inflorescence said to be indefinite and when definite?
 - 24. When is a flower incomplete yet perfect?
- 25. What reason have we to believe that the organs of a flower are developed from leaves?
- 26. What is the distinction between primary and secondary roots?

- 27-28. Define perianth and receptacle.
- 29. Show in what way the animal and vegetable kingdom are mutually dependent.
 - 30. What constitutes a genus and what a class in botany?

Describe the specimens before you, according to the following directions, and in all cases give the reasons for your answer:

- 1. No. 1. State whether it is exogenous or endogenous; give its age.
 - 2. No. 2.—Give the name of its class and age if possible.
 - 3. No. 3.-State the venation and form.
 - No. 4.—State the venation and form.
- 5. Do No. 3 and No. 4 belong to endogenous or exogenous plants?
 - 6. No. 5.—State the venation and form.
- 7. No. 6.—Describe the kind of leaf with regard to venation.
 - 8. No. 7.—Similarly describe No. 8.
 - 9-10. State which of Nos. 5, 7 and 8 are endogenous and which exogenous.
 - No. 8.—Describe its calvx.
 - 12. Describe its corolla.
 - 13. Is the pistil simple or compound?
 - 14. Name the parts of the pistil.
 - 15. Name the parts of the stamens.
 - 16. What is the insertion of the corolla?
 - 17 What portion of the flower is inserted on the receptacle?
 - 18. Why is this flower complete?
 - 19. Why perfect?
 - 20. Is it an exogen or an endogen.

ROCHESTER FREE ACADEMY.

EXAMINATION PAPERS.

CHEMISTRY.

CHEMISTRY

- 1. Define chemistry.
- 2-3. Define inorganic and organic chemistry.
- 4. What is an element?
- 5. Describe the force concerned in the formation of chemical compounds.
 - 6. What four things favor the action of this force?
 - 7. How are chemical symbols formed?
- 8. Write the names of the elements whose chemical symbols are Cu, Au, Hg, and Fe.
- Write the symbols for the following elements: carbon, chlorine, phosphorus and potassium.
- 10-11. What is meant by saying that the atomic weight of oxygen is 16 and its specific gravity 1.1?
- 12. What is the distinction between an atom and a molecule?
- 13. To what is the molecular weight of a compound equal?
 - 14. What is a binary compound?
- 15. Name the binary compounds whose symbols are K I, Na Cl, N₂ O and N₂ O₂.
- 16-17. What elements are necessary for the formation of the hydracids and what for the oxacids?
- 18-21. Write the names of the acids whose symbols are H Cl O, H Cl O_2 , H Cl O_3 , and H Cl O_4 .

- 22. Name the constituents of phosphoric and of bromic saids.
- 23. Name the elements in hydrofluoric and in hydrochloric acids.
- 24. What is the difference in composition of hydrosulphuric acid and sulphuric acid?
- 25. Indicate by symbols and signs the conversion of sulphuric acid (H₂ S O₄) into sulphuric anhydride.
- 26. Name the acid and metal concerned in the formation of sodium sulphate.
- 27. By what simple test could you distinguish a jar filled with oxygen from one filled with nitrogen?
- 28. One filled with hydrogen from one filled with carbonic dioxide?
- 29-30. Describe the ways by which the chemical composition of water has been determined.
 - 31. State the two principal uses of free oxygen.
 - 32. State the use of the nitrogen of the air.
- 33. How do we know that the diamond and charcoal are composed of the same elementary substance?
 - 34. Why cannot a person live in an atmosphere of C O₂?
 - 35. What is combustion?
- 36. What two compounds are formed by the burning of the hydro-carbons?
 - 37. Of what does the inner blaze of a candle consist?
 - 38. On what principle is Davy's safety lamp constructed?
- 39. Why is fire damp more dangerous than choke damp in mines?
- 40. What test should be employed before going down into an old well or cellar?

PROBLEMS.

- 1. What proportion of Hemlock Lake is hydrogen?
- 2. What weight of C in a ton of C O₂? The atomic weight of C is 12.

- 3. How many cubic feet of H will 20 cubic feet of O burn?
- How many pounds of O can be obtained from 245 pounds of K Cl O₃? The atomic weight of K is 39; of Cl 35.5.
- 5. In 98 pounds of He S O4 how many pounds of S? The atomic weight of S is 32.
- 6. How many pounds of water must be removed from the above to convert it into sulphuric anhydride?
- 7. In 73 pounds of hydrochloric acid how many pounds of H and Cl?
- 8. In 117 pounds of table salt (Na Cl) how many pounds of the metal sodium? The atomic weight of Na is 23.
 - 9. Solve the above problem by proportion.
- 10. How many carats will a diamond weigh which on being burned will form 88 grains of C O₂? A carat equals 4 grains.

ROCHESTER FREE ACADEMY.

EXAMINATION PAPERS.

GEOMETRY.-C

GEOMETRY---C.

- 1. Define Geometry, and name the geometrical magnitudes.
- 2. When are two angles said to be complements? When supplements?
- 3. In what three cases are triangles equal? In what cases are parallelograms equal in area?
- To what is the square described on the difference of two lines equivalent? To what is the difference of the squares described on two lines equivalent?
- 4. Demonstrate the following theorems: The square-described on the hypotenuse of any right-angle triangle is equivalent to the sum of the squares described on the other two sides.
- 5. If in any triangle a line be drawn from any angle to the middle of the opposite side, twice the square of this line, together with twice the square of one half the side bisected, will be equivalent to the sum of the squares of the other two sides.
 - 6. Define proportion. When is a proportion taken inversely? When alternately or by alteration?

What are mutually equiangular polygons? Similar polygons?

- 7. What is the measure of a trapezoid?
- 8. What conditions are necessary to render triangles equal?
 - 9. What are similar figures?
 - 10. When is a proportion taken inversely?

- 11. In what three cases are triangles similar?
- 12. What is a chord of a circle?
- 13. What is a secant of a circle?
- 14. To what is the square described on the difference of two lines equivalent?
- 15. To what is the difference of the squares described on two lines equivalent?
 - 16. How many points may two lines have in common?
 - 17. To what is the exterior angle of a triangle equal?
- 18. To what is the sum of the interior angles of a polygon equal?
- 19. What is the measure of an angle at the circumference of a circle?
- 20. What is the measure of an angle at the center of a circle?

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EXAMINATION PAPERS.

GEOMETRY.-B.

GEOMETRY--- B.

I. Define a prism; pyramid; cylinder; cone; sphere.

What is a spherical sector? spherical segment? small circle? great circle? zone?

II. What is the measure of the volume of a parallelopipedon? of the volume of a prism? of the volume of a pyramid? of the volume of a cone? of the volume of a sphere?

III. Discuss the following therem:

Two parallelopipedons, the one rectangular, and the other oblique, will be equal in volume when, having the same base and altitude, two opposite lateral faces of the one are in the planes of the corresponding lateral faces of the other.

IV. Also the following theorem:

The volume of the frustum of a pyramid is equivalent to the sum of the volumes of three pyramids, each of which has an altitude equal to that of the frustum, and whose bases are, respectively, the lower base of the frustum, the upper base of the frustum, and a mean proportional between these bases.

V. Also the following theorem:

The convex surface of any right pyramid is measured by the perimeter of its base, multiplied by one-half its slant height.

VI. Solve the following problems:

The diameter of a sphere is 12 inches; how many cubic inches does the sphere contain?

The surface of a sphere is 68 square feet; what is its diameter?

If the diameter of the single base of a spherical segment be 16 inches, and the altitude of the segment 4 inches, what is its solidity? ROCHESTER FREE ACADEMY.

EXAMINATION PAPERS.

CEOMETRY.

GEOMETRY

I. Name and define the geometrical magnitudes.

Give the division of triangles with reference to angles, with reference to sides.

Name and define the figures of four sides.

II. To what is the sum of all the angles of a triangle equal? Of a quadrilateral? Of a hexagon? Of a polygon of any number of sides?

What is the measure of the area of a triangle? Of a rectangle? Of a circle?

III. Discuss the following theorems:

The square described on the hypotenuse of any rightangled triangle is equivalent to the sum of the squares on the other two sides.

The two diagonals of any parallelogram bisect each other; and the sum of their squares is equivalent to the sum of the squares of the four sides of the parallelogram.

Define ratio, proportion.

What are the terms of a proportion? The extremes? The means? The antecedents? The consequents?

When is a proportion taken inversely? When alternately?

V. Discuss the following theorem:

If lines are drawn cutting the sides, or the sides produced, of a triangle proportionally, such secant lines are parallel to the base of the triangle; and conversely, lines drawn parallel to the base of a triangle cut the sides or sides produced proportionally.

VI. What is a circle? An arc of a circle? A chord? A tangent? A secant? A segment? A sector?

What is the greatest chord a circle can have?

What is the measure of an angle at the center of a circle? At the circumference?

VII. Discuss the following theorem:

When the chords intersect each other in a circle, the rectangle contained by the segments of the one, will be equivalent to the rectangle contained by the segments of the other.

VIII. Solve, in a general way, the following problems:

At a given point in a line, to construct an angle equal to a given angle.

To find the center of a given circle.

To construct a square that shall be equivalent to the difference of two given squares?

IX. Solve the following problems:

The diameter of a circle is 12, and a chord of a circle is 4; what is the length of the perpendicular drawn from the center of the circle?

Three brothers, whose residences are at the vertices of a triangular area, the sides of which are severally 10, 11 and 12 chains, wish to dig a well which shall be at the same distance from the residence of each. Determine the point for the well, and its distance from each.

X. Define a diedral angle; a triedral; a polyedral angle-Discuss the following theorems:

If two straight lines be drawn in any direction through parallel planes, the planes will cut the lines proportionally.

Any one of the three plane angles bounding a triedral angle is less than the sum of the other two.

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EXAMINATION PAPERS.

ALGEBRA

ALGEBRA.

1. Distinguish between the explicit and the implicit conditions of a problem.

What use is made of the given conditions in the solution of a problem?

2. When will a negative result be obtained from the solution of a problem?

What use can be made of such a result?

3. What is the quality of a quantity?

How may we change the quality of a quantity represented by some symbol in an equation?

- 4. One pound of ten and three pounds of sugar cost \$1.20; but, if ten were to rise 50 per cent., and sugar 10 per cent., they would cost \$1.56; find the price per pound of each.
- 5. If there were no accidents, it would take half as long to travel the distance from A to B by railroad as by coach; but three hours being allowed for accidental stoppages by the former, the coach will travel all the distance but fifteen miles in the same time; if the distance were two-thirds as great as it is, and the same time allowed for railway stoppages, the coach would take exactly the same time; find the distance from A to B.
- 6. A number consisting of two digits contains the sum of its digits four times and their product three times; find the number.
- 7. Define a finite quantity. Give the symbols which represent all quantities not finite.

Give the value of each of the following expressions, and your reasons for assigning it such a value:

$$\frac{0}{a}$$
, $\frac{\infty}{\infty}$, $\infty \times 0$.

- 9. What is an infinitesimal of the first order? Of the third order?
- 10. In the problem of the couriers, what is understood by the value of x, when it is represented by the symbol $\frac{\theta}{u}$?
- 11. From 2x+y=12 take 2x+5y>16, and give the reason for the sign of inequality as used in the result.
- Define the exponent of the power—a perfect power—a surd.
- 13. What is the law of exponents in involution? In evolution?
 - 14. Find the mth power of $-a^2 b^m c^{-n}$ when m is even.
 - 15. Find the cube root of $8a |-36a^{\frac{2}{3}}b^{\frac{1}{3}} |-54a^{\frac{1}{3}}b^{\frac{2}{3}} + 27b$.
 - 16. Find the meaning of $a^{\frac{2}{3}}$. Of a^{-1} .

17. Show that
$$\frac{a^{\frac{1}{a}}}{b^{\frac{1}{a}}} = \left(\frac{a}{b}\right)^{\frac{1}{a}}$$
.

- 18. Divide $(x^{\frac{3}{4}})^{\frac{2}{3}}$ by $(x^{\frac{1}{2}})^{\frac{4}{3}}$
- 19. Find the product of $\sqrt[3]{6bc^{-1}}$, $\sqrt[6]{a}$, $\sqrt[3]{3^{-1}bc^2}$, $\sqrt[6]{a^{-1}}$.
- 20. Multiply $2\sqrt[3]{x^2} + \sqrt{xy}$ by $3\sqrt[3]{x} \sqrt{xy}$.
- 21. Multiply $3 + V_{-2}$ by $2 V_{-4}$.
- 22. Rationalize the denominator of $\frac{V_{a-|-x}+V_{a-|x}}{V_{a-|-x}-V_{a-|x}}$
- 23. Find the value of x in $\frac{1}{x} + \frac{1}{5} = V_{\frac{1}{2}\frac{1}{5} |-\frac{1}{x}|_{\frac{1}{5}} |-\frac{1}{x}|}$



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EXAMINATION PAPERS.

GERMAN GRAMMAR.—D.

GERMAN GRAMMAR---D.

I.

How many parts of speech have we in German?

II.

How are the Capital letters used in German?

III.

What is said about punctuation in German?

IV.

Which article has no plural form?

V.

Write a German sentence in which the adjective is declined, and one in which the adjective is not declined.

VI.

To what do compound words ending in mann change their ending in the plural, when it is a person without regard to sex?

VII.

Classify the gender of substantives.

VIII.

Write out the order of words in a simple sentence.

IX.

Conjugate scin in full.

X. Translate:-

Paris hat mehr als ein Duhend großer Theater. Das erste von allen ift die große Oper in der Straße Lepelletier. Dieses Operuhaus ist, nachdem man den Saal in der Straße Richelieu, wo der Herzog vou Verry am 13ten Kebruar 1820 ermordet wurde geschlossen hate, sür die Oper gedant worden. Der Saal kann 1940 Perionen sassen. Unter der Regierung Ludwig Philipps hatte die Oper von der Regierung eine jährliche Unterstützung von 760,000 Franken; die Regierung Andoleon III. hat die ganze Verwaltung übernehmen müssen. Mus dieser Vühne sungen die ersten Sänger und Sängerinnen, und die allerbesten Tänzer bilden die Ballet-Truppe. Die Pracht der Dekorationen und der Reichstum der Kostüme kosten sichtlich viele Tausende und stud bewonderungswürdig. Die Vorstellungen sinden gewöhnlich jedeu Tag katt.

EXAMINATION PAPERS.

GERMAN GRAMMAR .--- A, B and C.

GERMAN GRAMMAR---A, B and C.

T.

Compare the following adjectives:—1. reich. 2. farf. 3. weife. 4. edel. 5. qut.

II.

Into what two classes are the definite numerals divided?

III.

Gins, when a numeral, is declined like which article?

IV.

What four classes of numerals are formed from the cardinals?

V.

What three classes of compound numerals are formed from the ordinals?

VI.

Translate:

Unfer Land.

Die Bereinigten Staaten von Nord-Amerika waren einst ein großer dichter Wald, in dem wilde Thiere hausten, die den rohen Eingebornen zur Rahrung dienten. Keine ordentliche Wohnung, nur armselige Hitten, waren hier zu sinden. Run ist das Land mit Stadten und Dörfern besäct, die von betriebsammen Einwohnern bewohnt werden. Die Wälder werden immer mehr gesichtet und das Land urbar gemacht; keine reißenden Thiere, seine wilden Menschen gefährden das Leben des friedlichen Bewohners. Wit den trefslichsten Gaben Gottes gesguet, liefert es

das was der Mensch zu seinem Unterhalte bedarf. Liebliche Fluren, sette Weiden und malerische Vergreihen, zwischen denen wonnige Thäler sich öffnen, wechseln mit einander ab. Zahlereiche Eisenbahnen, Flüsse, Canäle und Bäche durchfreuzen es in allen Richtungen, und bringen den Uebersluß des Laudmannes zum Verfause in die großen Städte. Wer nicht muthwillig die Arbeit slieht, sindet sat iderall hinlängliche, oft reichliche Kahrung. Ueberdieß ist es das einzige Land, in dem wahre Religionsfreiheit und Tuldung herrscht, alle Bürger vollkommen gleiche Rechte haben und kein Unterschied Statt sindet, der sich auf die Geburt gründet. Seit mehr als zweihundert Jahren ist es die Zusluchtsflätte aller durch religiöse und politische Intoleranz Versolgten, welche hier Ruch, Freiheit und Rahrung finden, wenn sie sich in ihrem neuen Vateralde nützlich machen wolsen.

VII.

Render and explain the two modes of address.

VIII.

How are the multiplicatives formed from the cardinal numbers?

IX.

How are the fractionals formed from the ordinal numbers?

X.

Translate:

He who is poor is not always unhappy.

XI.

How can mer and mas be made more emphatic?

XII.

How are the interrogative pronouns, wer, was, welcher, and was für cin used, and what do they refer to?

XIII.

Decline mer.

XIV.

Decline was für ein in the masculine, feminine, neuter and plural.

XV.

How many conjugations of irregular verbs have we?

XVI.

Give the principal parts of effen, fchlafen, graben, fingen and weben.

XVII.

Conjugate abithreiben in the second conditional.

XVIII.

What do the adverbs ber and bin denote in regard to the speaker?

XIX.

How are adverbs formed from nouns or participles?

XX.

Translate the following interjections:

Attention! Help! Gentle! Out of the way! Hail!

ROCHESTER FREE ACADEMY.

EXAMINATION PAPERS.

GERMAN READER.

GERMAN READER.

I.

Write a German composition on Schiller's Maid of Orleans.

II.

TRANSLATE-

3 o h. (sieht lächelnd umher.)—Und ich bin wirklich unter meinem Bolf Und bin nicht mehr verachtet und verstoßen?
Wan flucht mir nicht, man sieht mich gutig an?
— Ja, jest erkenn' ich deutlich Alles wieder!
Das ift mein König! Das sind Frankreichs Hahnen!
Doch meine Fahne seh' ich nicht—Wo ist sie?
Richt ohne meine Fahne darf ich kommen;
Bon meinem Meister ward sie mir vertraut,
Bor seinem Thron muß ich sie niederlegen;
Ich darf sie zeigen, denn ich trug sie treu.

III.

How is such — as rendered, when marking similarity between two persons?

IV.

What is the present and the original signification of formen?

V.

How is bürfen best rendered negatively?

VI.									
What does mogen signify?									
1.									
2.									
3.									
4.									
VII.									
Translate—									
If I have anything, I give it. In the									
1. Certainty.									
2. Present Impossibility.									
3. Past Impossibility.									
4. Uncertainty.									
5. Possibility.									
VIII.									
How is the future participle obtained in German?									
IX.									
When several adverbs are used in the same sentence, which precede?									
X.									
Correct the following sentence:									
Während dem Kriege blieb manches Werk unvollendet.									

EXAMINATION PAPERS.

LATIN READER.

LATIN READER.

Translate:-

Ĭ.

Hacc omnia asinus conspicatus, O me stolidum, inquit, qui beatitudinem ex praesentis tempŏris fortuna aestimavērim.

2. What does ex govern? 3. Parse qui. 4. Where is have made? 5. In what different cases may the form have be found? 6. Explain the syntax of me. 7. Where is aestimaverim made? 8. Inflect its tense. 9. What is the use of inflection in Latin? 10. What supplies its place in English?

II.

Accipitres quondam acerrime inter se belligerabant. Hos columbae in gratiam reducere conatae effecerunt, ut illi pacem inter se facerent. Qua firma ta, accipitres vim suam in ipsas columbas converterunt. Haec fabula docet, potentiorum discordias imbecillioribus saepe prodesse.

2. Compare acerrime. 3. Decline vim. 4. What is the construction of last clause? 5. When used? 6. What is the syntax of imbecillioribus? 7. What are the properties of conātae? 8. What word determines these? 9. Parts of prodesse. 10. Parse firmata.

III.

Cui, lupus, non tu, inquit, sed tectum mihi maledicit. Saepe locus et tempus homines timidos audaces reddit.

2. What kind of verb is *inquit?* 3. Define the class.
4. What peculiarity has *locus?* 5. What is it called on that account? 6. Give the root of *tempus*. 7. Declensions of

timidos and audaces. 8. How many endings has each? 9. Explain agreement of maledicit. 10. Of reddit.

IV.

Corvus partem praedae petebat a lupis, quod eos totum diem comitatus esset. Cui illi, Non tu nos, inquiunt, scd praedam sectatus es, idque eo animo, ut ne nostris quidem corporibus parceres, si exanimarentur. Merito in actionibus non spectatur, quid fiat, sed quo animo fiat.

2. Decline diem. 3. How is it irregular? 4. Derive comitatus. 5. What is the composition of examinarentur? 6. Parse parceres. 7. What part of speech is quid? 8. What the construction of the last clause? 9. Why used? 10. How may this usage be determined?

v

Canis jacebat in praesepi boves que latrando a pabulo arcebat. * * * Quanta ista invidia est, quod non pateris, ut eo cibo vescamur quem tu ipse capere nec velis nec possis.

2. Give the gender of praesepi. 3. Rule. 4. What case does in govern here? 5. Why? 6. What two cases do Latin prepositions govern? 7. Govern cibo. 8. What kind of verb is velis? 9. Define, and name others of same class. 10. Decline boves.

VI.

Monet hace fabula, ne ob aliquod bonum quod nobis natura tribuit, alios contemnamus, quibus natura alia et fortasse majora dedit.

2. What determines the gender and number of quod?
3. What is its case? 4. Decline alia in the sing. 5. What is nobis from? 6. Name the other pronouns of the same class. 7. How is alia used here? 8. Give the positive of majora. 9. Give the root of each verb in the exercise. 10. Parse majora.

VII.

Duo qui una iter faciebant, asinum oberrantem in solitudine conspicati, accurrunt lacti, et uterque eum sibi vindicăre cœpit, quod eum prior conspexisset.

2. Decline duo. 3. Name the participles in the sentence.

4. What are the participles of both voices? 5. Compare prior. 6. How is accurrent composed? 7. By what principle is the change of consonant made? 8. Give rule for the gender and the genitive of solitudine. 9. Of What conjugation is conspexisset? 10. How are the several conjugations distinguished?

VIII.

Quod quum facere non possent, distribuit singulas virgas, iisque celeriter fractis, docuit illos, quam firma res esset concordia, quamque imbecillis discordia.

2. When can the participle of the Abl. Abs. be translated by the perf. act.? 3. Can it in this instance? 4. Name the accusatives governed by docuit. 5. Of what declension is virgas? 6. How are declensions characterized? 7. Decline singulas. 8. Give a synopsis of docuit in the Ind. and Sub. 9. Construction of res. 10. Gender of imbecillis.

IX.

Milvius laqueis irretitus musculum eoravit ut eum corrosis plagis liberaret. Haec fabula ostendit, quam gratiam mali pro beneficiis reddere soleant.

2. How may the Subjunctive with ut be rendered?
3. Divide and accent laqueis, giving reasons. 4. What kind of noun is musculum? 5. What are the endings of diminutives? 6. What kind of verb is soleant? 7. Parse beneficis. 8. Compare mali. 9. Construction of reddere.
10. Give the other infinitives of this verb, act and pass.

\mathbf{v}

At isti impune ovem comedunt. Tum unus illorum, Nos enim, inquit, nostra, non aliëna ove epulamur.

What kind of verb is cpulāmur?
 Define the class.
 What is the sense of isti?
 Give the syntax of ove.
 Give the irregular cases of unus.
 Name the other adjectives similar to it.
 Govern illorum.
 Give the parts of the verbs in the exercise.
 Inflect the tense of each.

EXAMINATION PAPERS.

CICERO

CICERO.

- Give some account of the Catilinarian conspiracy its origin and aim, and the means by which it was overthrown. Sketch in brief Catiline's character.
- 2. What methods of disposing of the captured conspirators were presented in the senate; which of them is the consulthought to have preferred, and which finally prevailed?
- 3. Who was Archias, what was the charge brought against him, and what obligations does Cicero say rested upon himself to make the orator undertake the poet's defense?
- 4. State some of the strongest arguments used in that defense.

Translate:-

5. Quae tecum, Catilina, sic agit, et quodammodo tacita loquitur: "Nullum jam aliquot annis facinus exstitit nisi per te; nullum flagitium sine te: tibi uni multorum civium neces, tibi vexatio direptioque sociorum impunita fuit ac libera: tu, non solum ad negligendas leges et quaestiones, verum etiam ad evertendas perfringeudasque valuisti. Superiora illa, quamquam ferenda non fuerunt, tamen, ut potui, tuli: nunc vero me totam esse in metu propter unum te, quidquid increpuerit, Catilinam timeri, nullum videri contra me consilium iniri posse, quod a tuo scelere abhorreat, non est ferendum. Quamobrem discede atque hunc mihi timorem eripe: si est verus, ne opprimar; sin falsus, ut tandem aliquando timere desinam.

- 6. Sed cur tamdiu de uno hoste loquimur, et de eo hoste, qui jam fatetur se esse hostem, et quem, quia, quod semper volui, murus interest, non timeo; de iis, qui dissimulant, qui Romae remanent, qui nobiscum sunt, nihil dicimus? quos quidem ego, si ullo modo fieri possit, non tam ulcisci studeo quam sanare sibi ipsos, placare rei publicae; neque, id quare fieri non possit, si me audire volent, intelligo. Exponam enim vobis, Quirites, ex quibus generibus hominum istae copiae comparentur: deinde singulis medicinam consilii atque orationis meae, si quam potero, afferam.
- 7. Interim, tertia fere vigilia exacta, quum jam pontem Mulvium cum magno comitatu legati Allobrogum ingredi inciperent unaque Volturcius, fit in eos impetus: educuntur et ab illis gladii et a nostris. Res praetoribus erat nota solis: ignorabatur a ceteris.

Tum interventu Pomptini atque Flacci pugna [quae erat commissa] sedatur. Literae, quaecumque erant in co comitatu, integris signis, praetoribus traduntur: ipsi comprehensi ad me, quum jam dilucesceret, deducuntur. Atque horum omnium scelerum improbissimum machinatorem, Cimbrum Gabinium, statim ad me, nihildum suspicantem, vocavi; deinde item arcessitus est L. Statilius et post eum C. Cethegus; tardissime autem Lentulus venit, credo, quod in literis dandis praeter consuetudinem proxima nocte vigilarat.

8. Quam multos scriptores rerum suarum magnus ille Alexander secum habuisse dicitur! Atque is tamen, quum in Sigeo ad Achillis tumulum adstitisset, "O fortunate," inquit, "adolescens, qui tuae virtutis Homerum praeconem inveneris! Et vere; nam nisi Ilias illa exstitisset, idem tumulus, qui corpus ejus contexerat, nome etiam obruisset. Quid? noster hic Magnus, qui cum virtute fortunam adaequavit, nonne Theophanem Mitylenaeum, scriptorem rerum suarum, in concione militum civitate donavit, et nostri illi fortes viri, sed rustici ac milites, dulcedine quadam gloriae commoti, quasi participes ejusdem laudis, magno illud clamore approbaverunt?

Certe, si nihil animus praesentiret in posterum, et si quibus regionibus vitae spatium circumscriptum est, eisdem

omnes cogitationes terminaret suas, nec tantis se laboribus frangeret neque tot curis vigiliisque angeretur neque totiens de vita ipsa dimicaret. Nunc insidet quaedam in optimo quoque virtus, quae noctes ac dies animum gloriae stimulis concitat atque admonet, non cum vitae tempore esse dimittendam commemorationem nominis nostri, sed cum omni posteritate adaequandam.

- 9. Name in order the subjects of esse, timeri, videri, iniri, posse and est ferendum, in 5.
- 10. In what mood (and by what rule) is comparentur, in 6?
- 11. What kind of verb is dilucesco? Give its derivation and composition.
- 12. What would you render Alexander ille magnus and Ilias ille, and to what part of speech has this use of ille led, in the Romance languages, French, Spanish, &c.?
- 13. Give the rule for the mood of *inveneris*, and render it correctly into English by means of a participle, governed by a preposition, carefully observing the tense.
- 14. Derive the Latin words nomen, particeps, pastor and probatio, and the English words article, noun, pronoun, adjective, participle, verb, adverb, preposition, conjunction and interjection, giving the etymon of each.

EXAMINATION PAPERS.

virgit.

VIRGIL.

- 1. Give a summary of the third, fourth and fifth books of the Æneid.
- 2. What eminent ancient poet preceded Virgil in delineating scenes and characters of the invisible world, and from which of that poet's works do we find compilations and translations in the sixth book of the Æneid?
- 3. What can you say of the literature on the same subject, since the time of Virgil? Name one or two voluminous writers in that line, and a translation of one such work by a distinguished modern poet.

Translate:-

- 4. Postquam altum tenuere rates, nec jam amplius ullae Apparent terrae, coelum undique et undique pontus, Tum mihi caeruleus supra caput adstitit imber. Noctem hiememque ferens, et inhorruit unda tenebris. Continuo venti volvunt mare magnaque surgunt Aequora; dispersi jactamur gurgite vasto; Involvere diem nimbi, et nox humida coelum Abstulit; ingeminant abruptis nubibus ignes. Excutimur cursu, et caecis erramus in undis.

 5. Aeneas celsa in puppi, jam certus eundi,
- Carpebat somnos, rebus jam rite paratis.
 Huic se forma dei vultu redeuntis eodem
 Obtulit in somnis, rursusque ita visa monere est,
 Omnia Mercurio similis, vocemque coloremque
 Et crines flavos et membra decora juventa:
 Nate dea, potes hoc sub casu ducere somnos,
 Nec, quae te circum stent deinde pericula, cernis,
 Demens, nec Zephyros audis spirare secundos?

- Hic primum Fortuna fidem mutata novavit. Dum variis tumulo referent sollemnia ludis. Irim de coelo misit Saturnia Juno Iliacam ad classem, ventosque adspirat eunti, Multa movens, necdum antiquum saturata dolorem. Illa, viam celeraus per mille coloribus arcum. Nulli visa cito decurrit tramite virgo. Conspicit ingentem concursum, et litora lustrat, Desertosque videt portus classemque relictam.
- Sunt geminae Somni portae, quarum altera fertur Cornea, qua veris facilis datur exitus Umbris: Altera candenti perfecta nitens elephanto, Sed falsa ad coelum mitunt insomnia Manes. His ubi tum natum Anchises unaque Sibyllam Prosequitur dictis, portaque emittit eburna, Ille viam secat ad naves sociosque revisit: Tum se ad Caietae recto fert litore portum. Ancora de prora jacitur; stant litore puppes.
- Scan the first four lines of 4.
- 9. Give the part of speech, government and derivation of sundi, in 5, and govern the accusatives in the fifth and sixth lines of the same.
- What is meant by the radical meaning, or etymon of a word, and what advantage is it in reading Latin poetry to know the etymon of the words of which it is composed? Of what benefit is this knowledge to us in respect to the words of our own language?
- 11. Derive and give the etymon and the reason for the spelling of abscission, inflammable, excite, sign and signify.
- 12. Derive one or more English words from each word in the first two lines of 7.

SUCHE	CTFR	FRFF	ACAL	IFMY

EXAMINATION PAPERS.

CÆSAR

CÆSAR.

I. Translate :---

Caesar, equitatātu praemisso, subsequebātur omnībus copiis; sed ratio ordoque agminis aliter se habebat ac Belgae ad Nervios detulérant. Nam quod ad hostes appropinquābat, consuetudīne sua Caesar sex legiones expeditas ducēbat: post eas totīus exercitus impedimenta collocarat: inde duae legiones, quae proxime conscriptae erant, totum agmen claudebant praesidioque impedimentis erant. Equites nostri cum funditoribus sagittariisque flumen transgressi, cum hostium equitatu proelium commiserunt. Quum se illi identidem in silvas ad suos recipērent, ac rursus ex silva in nostros impětum facerent, neque nostri longius, quam quem ad finem porrecta ac loca aperta pertinebant, cedentes insequi audērent, intěrim legiones sex, quae prima veněrant, opere dimenso, castra munire coeperunt. Ubi prima impedimenta nostri exercitus ab his, qui in silvis abditi latebant, visa sunt, (quod tempus inter eos committendi proelii convenerat,) ita ut intra silvas aciem ordinesque constitučrant, atque ipsi sese confirmavčrant, subito omnibus copiis provolaverunt, impetumque in nostros equites fecerunt.

- (a.) What is the force of sub in subsequabatur?
- (b) What is the full form for collocarat? Explain the change or changes.
 - (c.) Parse cedentes.
 - (d.) What is the difference between primus and princeps?

II. Translate:

Caesar, quum septimam legionem, quae juxta constitérat, item urgēri ab hoste vidisset, tribūnos militum monuit, ut paulātim sese legiones conjungērent et conversa signa in hostes inferrent. Quo facto, quum alius alii subsidium ferret, neque timērent, ne aversi ab hoste circumvenirentur, audacius resistēre ac fortius pugnāre coepērunt. Intērim milītes legionum duārum, quae in novissīmo agmīne praesidio impedimentis fuērant, proelio nunciāto, cursu incitato, in summo colle ab hostībus conspiciebantur; et T. Labiēnus castris hostium potītus, et ex loco superīore, quae res in nostris castris gererentur, conspicātus, decimam legionem subsidio nostris misit. Qui quam ex equitum et calonum fuga, quo in loco res esset, quantoque in periculo et castra, et legiones, et imperator versarētur, cognovissent, nihil ad celeritātem sibi reliqui fecērunt.

- (a.) Govern praesidio and impedimentis.
- (b.) Parse castris.
- (c.) What is the rule for the mood of versaretur?
- (d.) Govern reliqui.

III. Translate:-

Ad haec Caesar respondit, se magis consuetudine sua, quam, merito eōrum, civitātem conservatūrum, si prius, quam murum aries attigisset, se dedidissent; sed deditionis nullam esse conditionem, nisi armis tradītis. Se id, quod in in Nerviis fecisset, factūrum, finitimisque imperatūrum, ne quam dedititiis popūli Romāni injuriam inferrent. Re nunciata ad suos, quae imperarentur, facĕre dixērunt. Armōrum magna multitudīne de muro in fossam, quae erat ante oppīdum, jacta, sic ut prope summam muri aggerisque altitudīnem acervi armōrum adaequārent, et tamen circīter parte tertia, ut postea perspectum est, celāta atque in oppīdo retenta, portis patefactis, eo die pace sunt usi.

- (a.) Parse conservaturum.
- (b.) Give the principal parts of all the verbs in the chapter.
- (c.) What figure of syntax occurs in the last sentence?
- (d.) Govern pace.

IV. Translate:-

Hujus est civitatis longe amplissima auctoritas omnis orae maritimae regionum earum, quod et naves habent Veněti plurimas, quibus in Brittanniam navigare consuerunt, et scientia atque usu nauticarum rerum reliquos antecedunt, et in magno impětu maris atque aperto, paucis portibus interiectis, quos tenent ipsi, omnes fere, qui eo mari uti consuerunt, habent vectigāles. Ab his fit initium retinendi Silii atque Velanii, quod per eos suos se obsides, quos Crasso dedissent, recuperaturos existimabant. Horum auctoritate finitimi adducti, (ut sunt Gallorum subita et repentina consilia,) eadem de caussa Trebium Terrasidiumque retinent, et, celeriter missis legătis, per suos principes inter se conjurant, nihil nisi communi consilio, acturos eundemque omnis fortunae exitum esse laturos; reliquasque civitates sollicitant, ut in ea libertate, quam a majoribus acceperant, permanere. quam Romanorum servitutem perferre mallent. Omni ora maritima celeriter ad suam sententiam perducta, communem legationem ad P. Crassum mittunt: si velit suos recipere, obsides sibi remittat.

- (a.) Govern scientia and usu.
- (b.) In what voice is fit? Principal parts?
- (c.) What is the composition of mallent?
- (d.) Parse suos.

V. Translate into Latin:-

As a field without culture, so is the mind without learning. It is better to receive than to give an injury.

Neither embroidered purple nor the scepter of Priam moved him.

Neither a tongue nor a hand was wanting to his purpose. Philosophy, the mother of all the arts, is the invention of the gods.

EXAMINATION PAPERS.

HOMER'S ILIAD.

Homer's Iliad.

- I.—Give a brief general account of the author of the Iliad, stating some of the difficulties in the way of ascertaining the truth in regard to him, and the more probable conclusion to which scholars have come. What other poems of his can you name?
- 2.—How many books are there in the Iliad? How many in Virgil's Æneid? What is the subject of the Iliad? How does the poem open, and how does this method of introduction compare with that of the Æneid?
- 3.—Give a short synopsis of the principal events recorded in the first book.
- 4.—What is the metre of the poem, and what is the difficulty of imitating this in English verse?
- 5.—If you were to give the ictus to the accented syllables, or pronounce by the accent, as it is called, what would be the result when attempting to scan Greek or Latin Verse?

TRANSLATE:

6.—' Ατρείδη, νῦν ἄμμε παλιμπλαγχθέντας δίω dφ ἀπονοστήσειν, εἴ κεν θάνατόν γε φύγοιμεν, εἰ δὴ ὁμοῦ πόλεμός τε δαμὰ καὶ λοιμὸς ' Αχαιούς. ἀλλ' ἄγε δή τινα μάντιν ἐρείομεν, ἢ ξερῆα, ἢ καὶ ὀνειροπόλον - καὶ γάρ τ' ὄναρ ἐκ Διός ἐστιν-ὅς κ' εἴποι, ὅ, τι τόσσον ἐχώσατο Φοῖβος ' Απόλλων, εἴτ' ἄρ' δγ εὐχωλῆς ἐπιμέμφεται, εἴθ' ἐκατόμβης αἴ κέν πως ἀρνῶν κνίσσης αἰγῶν τε τελείων βούλεται ἀντιάσας, ἡμῖν ἀπὸ λοιγὸν ἀμῦναι.

- 7.— Οἰνοβαρές, χυνὸς ὅμματ' ἔχων, χραδίην δ' ἐλάφοιο! οὕτε ποτ' ἐς πόλεμον ἄμα λαῷ θωρηχθῆναι, οὕτε λόχονδ, ἰἐναι σὑν ἀριστήεσσιν 'λχαιῶν τέτληχας θομῷ τὸ δέ τοι χὴρ είδεται εἰναι. ἡ πολὺ λάιὄν ἔστι, χατὰ στματὸν εὐρύν 'λχαιῶν δῶρ' ἀποαιρεῖσθαι, ὅστις σέθεν ἀντίον εἴπη. δημοβόμος βασιλεύς! ἐπεὶ οὐτιδαναῖσιν ἀνάσσεις ἡ γὰμ ἄν, 'Ατρείδη, νῦν ὕστατα λωβήσαιο!
- 8.— Τώγ' &ς βουλεύσαντε διέτμαγεν ή μὲν ἔπειτα εἰς ἄλα ἀλτο βαθεῖαν ἀπ' αἰγλήεντος 'Ολύμπου. Ζεὺς ὸὲ ἐὸν πρὸς δῶμα. θεοὶ δ' ἄμα πάντες ἀνέσταν ἐξ ἑδέων, σφοῦ πατρὸς ἐναντίον οὐδέ τις ἔτλη μεῖναι ἐπερχόμενον, ἀλλ' ἀντίοι ἔσταν ἄπαντες. ἀς ὁ μὲν ἔνθα καθέζετ' ἐπὶ θρόνου οὐδέ μιν "Ηρη ἡγνοίησεν ἰδοῦσ', ὅτι οἱ συμφράσσατο βουλάς ἀργυρόπεζα θέτις, θυγάτηρ άλίοιο γέροντος." αὐτίχα χερτομίοισι Λία Κρονίωνα προσηύδα.
- o.—Construct the metrical scale for the first three lines of 6.
- 10.—Explain the third and fourth words in the first line of 6.
- 11.—Composition of θ iνοβαρές, and where made? What is the δ ε in such words as λόχονδε, dγορήνδε, etc. Give the parts of τέτληχας. Analyze it. Account for the accentuation of Hηληϊάδεω.
- 12.—Give the Greek equivalents for rosy-fingered, Jove-born, well-girt and golden-throned.
- 13.—Derive choleric, phrenology, thanatopsis and Euphronia.

EXAMINATION PAPERS.

RHETORIC.

APRIL, 1877.

RHETORIC.

- 1. In order to speak and write well, what is necessary?
- 2. In writing compositions, what subjects would you select? What avoid? Why?
 - 3. How may one acquire a good vocabulary?
- 4. What distinctions would you make between the following synonyms: Remember, recollect; enough, sufficient; pretty, handsome, beautiful; curious, prying, inquisitive? Write a sentence for each word.
 - 5. In what does Purity of style consist?
- 6. Define Precision and Purity, and tell how each may be promoted.
 - 7. Define Clearness.
 - 8. Define Strength, and give its essentials?
 - 9. Analyze the subject "Water."
- 10. Write a composition of at least twenty-five lines on the subject "Water."

II

Correct the errors in the following sentences:

- 1. Nature tells me, I am the image of God as well as Scripture.
- 2. Mrs. Jones said to her daughter that perhaps she might go to the city for the zephyr she needed to finish the cushion for her sister's christmas present.

- 3. "Mind your own business" is an ancient proverh (indeed all proverbs seem to be ancient), which deserves a due degree of attention from all mankind.
- 4. Directly I found the house inhabited, I began to be sorry that it was not as empty as the library and the street.
 - 5. I promise you I think he will come out all right.
- 6. There are certain miseries in idleness which the idle can only conceive.
- 7. There is something that whispers of faith, too, in repose.
- 8. I would like the congregation to be seated, as I wish to say a few words, before I begin.
- 9. Having finished his house, and furnished it handsomely, he moved into it the 22d of February, which is Washington's birth-day.
 - 10. When will the curtain rise up?

EXAMINATION PAPERS.

ENGLISH LITERATURE.

APRIL, 1877.

ENGLISH LITERATURE.

- I. What people formed the basis of the English race? Whence and when did they come to Britain? What became of the people whom they supplanted? What changes did their occupation effect?
- II. What period of time was covered by the " Elizabethan age?"

What was the literary character of that age? Who were its chief writers?

III. Write a sketch of the life of the most eminent non-dramatic poet of the Elizabethan age.

Give a sketch of the plan of his chief production, with any facts concerning its character.

What later writers have attained emigence in allegory?

IV. Who was the most eminent prose author of the age already mentioned?

Give a sketch of the plan of his chief work.

In what respects does his system of philosophy differ from that of the aucient and medieval philosophers?

What has been the influence of his method?

V. In what century and by what writers was prose fiction first developed?

What attention has since been paid to this department?

Who have attained eminence therein?

What distinction is to be made between a romance and a novel?

VI. Who comprised the "Lake School"?

What is the significance of this epithet, and by whom was it first employed?

Give a sketch of the life of the founder of this school.

What are the characteristics of his poetry?

VII. What was the literary character of the eighteenth century?

VIII. Write a brief essay upon any author except those included in questions III and IV, or upon any theme connected with English Literature.

EXAMINATION PAPERS.

COMPOSITION AND READING.

APRIL, 1877.

COMPOSITION AND READING.

First Year.

Copy the following passage:

The quality of Mercy is not strained;
It droppeth, as the gentle rain from heaven,
Upon the place beneath. It is twice blessed;
It blesseth him that gives and him that takes.
"Tis mightiest in the mightiest; it becomes
The throned monarch better than his crown.
His scepter shows the force of temporal power,
The attribute to awe and majesty,
Wherein doth sit the dread and fear of kings;
But mercy is above this sceptered sway,—
It is enthroned in the hearts of kings,
It is an attribute to God himself;
And earthly power doth then show likest God's,
When mercy seasons justice.

- 1. Underline the emphatic words.
- 2. Indicate the places at which the falling inflection occurs.
- 3. Define composition; state the different kinds; and define each kind.
 - 4. Define a restrictive expression.
 - 5. Define a parenthetical expression.
- 6. Make sentences illustrating these two forms of expression, punctuating each properly.

- 7. Define an adjective modifier.
- Name the kinds of adjective modifiers.
- 9. Make sentences, each of which shall illustrate one of the modifiers named.
- 10. What is the difference between vale and vail? oar and ore? currant and current? principal and principle? desert and dessert? specie and species?
- 11. What word is stronger in meaning than oppressor? servant? anger? noted? flow? pleasant? pain? cheerful? breeze? perforate?
 - Give the rules for the use of capital letters.
 - 13. Make sentences illustrating each of these rules.
- 14. Give the rules for the interrogation point, exclamation point, and quotation marks; and illustrate each.
 - 15. Punctuate the following sentences:
 - Under what circumstances did he come for what purpose at whose instigation
 - 2. Never flatter the people leave that to such as mean to betray them
 - 3. There are three genders the masculine the feminine and the neuter
 - 4. He promised however to set about reform at once
 - 5. The fate of Rienzi the last of the Roman tribunes shows the fickleness of the populace
 - 6. The world of gayety of temptation and of pleasure allures thee
 - Rome having fallen the world relapsed into barbarism
 - 8. He was witty learned industrious plausible everything but honest
 - 9 Behold her single in the field You solitary Highland Lass.
 - 10. He answered my argument thus The man who lives by hope will die by despair
- 16. Write an exercise of at least a hundred words on the subject of Labor, punctuating carefully.

EXAMINATION PAPERS.

ALGEBRA.

$\mathcal{A}LGEBRA$.

1. How many and what are the classes of symbols used in mathematics?

Define and illustrate the absolute and the algebraic value of a quantity.

- 2. Define similar terms and similar radicals.
- 3. Show why a quantity is subtracted by changing its sign.
- 4. What is the value of any quantity affected by a negative exponent? Prove it.
- 5. Find the prime factors of m^5 — mn^4 , $\frac{1}{4}$ m^{-2} — $2m^{-1}$ n^3 + $4n^4$ and m^4 -|-1, and give the principles used in finding these factors.
- 6. Illustrate and explain the manner in which a factor may be transferred from one term of a fraction to the other.
- 7. What must every problem in Algebra contain? In what does the solution of a problem consist?
- 8. A person buys some tea at 36 cents a pound, and some at 60 cents a pound; he wishes to mix them so that by selling the mixture at 44 cents a pound he may gain 10 per cent. on each pound sold; find how many pounds of the inferior tea he must mix with each pound of the superior?
- 9. A general arranging his men in the form of a solid square, finds he has 21 men over; but, attempting to add one man to each side of the square, finds he wants 200 men to fill up the square; find the number of men?

- 10. State the nature and use of a general solution of a problem.
- 11. What causes the negative result which is sometimes obtained by the solution of a problem?
- 12. Solve the following problem and interpret the result: Two men, A and B, began trade at the same time, A having three times as much money as B; when A had gained \$400 and B \$150, A had twice as much money as B; how much did each have at first?
- 13. Give the value of each of the expressions $\frac{a}{\tilde{\omega}}$ and $\frac{0}{\tilde{0}}$ and the principles by which you determine the values.
- 14. Prove that $(a^m)^n=a^{mn}$ whether m and n represent fractional or negative quantities.
- 15. Define a radical quantity, a binomial surd, and a quadratic surd.
- 16-19. Perform the operations indicated in the following expressions, reducing each result to its simplest form:

$$(x^{-1})^{n^{\frac{3}{5}}},\ a^{-n}\ c\ (a^{mn}\ c^{2n}-a^{2mn}\ c^{n})^{\frac{1}{n}}, (1+\frac{x^{2}}{y^{1}})^{\frac{3}{2}}\times y^{5},\ {}^{8}\sqrt{\frac{a}{5}\sqrt{\frac{a}{5}}}.$$

- 20. Write the square of $\left(\frac{1-|-m|}{2}\right)^{\frac{1}{2}} = \left(\frac{1-m}{2}\right)^{\frac{1}{2}}$ and the cube of $3-|-\sqrt{5}$.
 - 21. Add $\sqrt{(1-|-a|)^{-1}}$, $\sqrt{a^2(1-|-a|)}$ and $\sqrt{(1-|-a|)} (1-a)^{-2}$.
- 22. Give an equation from which two other equations may be derived.
 - 23. Rationalize the denomination of the fraction $\frac{b}{a^* \sqrt{b^{-1}}}$
- 24. Indicate the work by which we may find a factor which would rationalize the quantity $a^{\frac{2}{3}}-b^{\frac{1}{3}}$ and give the principles employed in determining the factor.

25. Simplify
$$\frac{v_{x+}}{v_{x-}} \frac{v_{x-a}}{v_{x-a}} = \frac{n^1 a}{x-a}$$
.

EXAMINATION PAPERS.

GEOMETRY --- B.

GEOMETRY---B.

State, in a general way, the process of solving each of the following problems:

- 1. To find the center of a given circle.
- 2. From a given point, to draw a line parallel to a given line.
- 3. From any given circle to cut a segment that shall contain an angle equal to a given angle.

Give the complete solution of each of the following problems:

- 4. Given the radius of a circle unity, to find the areas of regular inscribed and circumscribed hexagons.
- 5. The diameter of a circle is 12; what is the area of the inscribed equilateral triangle?
- 6. Three brothers whose residences are at the vertices of a triangular area, the sides of which are respectively 10, 11 and 12 chains, wish to dig a well which shall be at the same distance from the residence of each; determine the point for the well, and its distance from their residences?
- 7. What will determine the position of a plane? What is the measure of the inclination of a line to a plane? When are magnitudes symmetrically equal?

Discuss the following theorems:

- If two straight lines be drawn in any direction through parallel planes, the planes will cut the lines proportionally.
- 9. Any one of the three plane angles bounding a triedral angle is less than the sum of the other two-
- 10. If two solid angles are formed by three plane angles respectively equal to one another, the planes which contain the equal angles will be equally inclined to one another.

EXAMINATION PAPERS.

GEOMETRY .--- A.

GEOMETRY---A.

- 1.—Define and illustrate the following: diedral angles and triedral angles.
- 2.—What is the measure of the convex surface of the frustum of a right pyramid?
- 3.—Give the enunciation of the proposition upon which the solution of the above depends.
- 4.—Three brothers, whose residences are at the vertices of a triangular area, the sides of which are severally 10, 11 and 12 chains, wish to dig a well which shall be at the same distance from the residence of each. Determine the point for the well, and its distance from their residences.
- 5.—If the diameter of the single base of a spherical segment be 16 inches, and the altitude of the segment 4 inches, what is its solidity?
- 6.—What is the solidity of the segment of a single base that is cut from a sphere 12 inches in diameter, the altitude of the segment being 3 inches?
- 7.—If we assume the diameter of the earth to be 7,956 miles, and the eye of an observer be 40 feet above the level of the sea, how far distant will an object be that is just visible on the earth's surface?
- 8.—Define a great and a small circle. State any truths respecting them.
- 9.—The surface of a sphere is 68 sq. ft.; what is its diameter?

10.—The longer of two parallel sides of a trapezoid is 12, the shorter 8, and their distance asunder 5; what is the area of the trapezoid?
11.—Two chords on opposite sides of the center of a circle are parallel, and one of them has a length of 16 and the other of 12 ft., the distance between them being 14 ft.; what is the diameter of the circle?

EXAMINATION PAPERS.

GEOLOGY.

GEOLOGY

- Of what does geology treat?
- 2. What is an ore?
- 3. Name three important properties of the mineral quartz.
- 4. Why should the sands of the sea-shore be mostly quartz?
- 5. Name the three forms in which carbon exists in nature.
- 6. What is the chemical composition of the mineral calcite?
- 7. By what chemical test could you recognize this mineral?
 - 8. State the characteristic properties of magnetite.
 - What is a conglomerate?
 - 10. State the composition of granite.
 - 11. How does granite differ from gneiss?
- 12. How was the great mass of unstratified rocks of the earth's crust formed?
- 13. Describe the principal way in which the stratified rocks have been formed.
- 14. What is the relation of the unstratified rocks, of the earth, to the stratified?
- 15. Name two examples of rocks made wholly of organic remains.
 - 16. What are metamorphic rocks?
 - 17. What is a fossil?
 - 18. What is a true petrifaction?
 - 19. What is a coral?

- 20. Describe the making of peat beds.
- 21. What geological work has been accomplished by the winds?
 - 22. Describe the geological work of rivers.
- 23. Ripple marks in rocks indicate what with regard to their formation?
 - 24. What is the origin of glaciers?
 - 25. What are icebergs, and how do they originate?
 - 26. What constitutes drift, and how did it originate.
- 27. How do we know that this region of North America was once passed over by a glacier?
 - 28. How may we determine in what direction it passed?
- 29. Describe the geological work accomplished through the expansion of ice.
- 30. What do we learn in regard to the physical characteristics of the lava from a volcano, by observing the slope of the mountain?
- 31. Describe the foramtion of the mountain chains of the earth.
- 32. What was the origin of the heat necessary for metamorphism?
- 33-36. Define the following geological terms: archæan time, paleozoic time, mesozoic time and cenozoic time.
 - 37. Name the five sub-kingdoms of animal life.
- 38. Describe the form of the North American continent, at the close of archæan time.
 - 39. Why are the archæan rocks mostly metamorphic?
- 40-41. What reasons have we for believing that animal and vegetable life existed near the close of archæan time?
 - 42. Describe the first vegetable life of the earth.
 - 43. For what is the Devonian age noted?
- 44. How do you account for layers of coal, alternating with layers of rock, in the coal measures?
 - 45. How does bituminous differ from anthracite coal?
- 46. For what is mesozoic time noted, with regard to animal life?
- 47. How did the animals of the tertiary age differ from those of the present day?

- 48. In what geological age did man appear on the earth?
- 49. What was his mode of life at first?
- $50.\,$ What is known in regard to the duration of geological time?
- 51. What reason have we for believing that man has existed on the earth for a much longer time than is generally supposed?

EXAMINATION PAPERS.

NATURAL PHILOSOPHY.

NATURAL PHILOSOPHY.

- 1. What essential property of the air is taken advantage of in the diving bell?
- 2. Why is the air in the upper regions of the atmosphere rarefied?
 - 3. Why does water rise in a straw by suction?
 - 4. What is sound?
- 5. Of gaseous, liquids and solids, which are the most and which the least rapid conductors of sound vibrations?
 - 6. How does a musical differ from an unmusical sound?
- 7. How does a sound of high pitch differ from one of low pitch?
 - 8. When is one sound the octave of another?
 - 9. What is an echo?
 - 10. In what manner does heat tend to diffuse itself?
 - 11. Why is the heat of the sun greatest at noon?
- 12. How do we know that the interior of the earth is a source of heat?
 - 13. How is the air surrounding the earth heated?
- 14. What effect has the color of bodies upon their absorption of heat?
- 15. Which classes of bodies are expanded the most, and which the least, by the application of heat?
 - 16. What peculiarities of expansion does water exhibit?
- 17-19. Describe the gradation of the Centigrade, the Reaumer and the Fahrenheit thermometer.
- 20. Under what circumstances does latent heat become sensible?
 - 21. To what is the elastic force of steam always equal?

- 22. What is the essential difference between a high and a low pressure steam engine?
 - 23. Why does the hot air balloon ascend?
 - 24. What is dew?
 - 25. Why is not dew formed abundantly on a cloudy night?
- 26-27. Describe the cirrus and cumulus, the stratus and nimbus clouds.
 - 28. What is the cause of the wind?
 - 29. What is the undulatory theory of light?
- 30. How does a transparent differ from a translucent body?
 - 31. How does the intensity of light decrease?
 - 32. What is the law of the reflection of light?
- 33. When light passes obliquely from a rare into a dense medium, how is it refracted?
- 34. In what manner are parallel rays of light affected by a double convex lens? Illustrate by a diagram.
- 35. How is the composition of the sunlight determined?
 36. How does the simple differ from the compound microscope?
- 37. What is the general law of magnetic attraction and repulsion?
- 38. What is the most important practical use of the magnet?
- 39. When is a body positively and when negatively electrified?
 - 40. What is electrical induction? Illustrate by a diagram.

PROBLEMS.

- 1. What pressure of the air will the body of an animal sustain whose superficial surface is 40 square feet?
- 2. To what height may water be raised by suction, at a place where the barometer stands at a height of 24 inches? The specific gravity of mercury is 13.6.
- 3. The flash of a cannon 4,480 feet distant was seen, and in four seconds afterward, the report was heard: What was the velocity of the sound?
- 4. At what distance was a flash of lightning, when the flash was seen 10 seconds before the thunder was heard?

- 5. Four seconds after a sudden shout the echo was heard: What was the distance of the reflecting surface?
- 6. C, of the musical scale is formed by 128 vibrations in one second; what number of vibrations will produce the octave?
- 7. A certain string of the piano vibrates 512 times in one second; if it were shortened one-half, how many times would it vibrate?
- 8. If the above string were stretched four times as tense, how many times would it vibrate?
- 9. At what degree would a Fahrenheit thermometer register a temperature that reaches 50° centigrade?
- 10. The water in a steam boiler is boiling at a temperature of 350° F.; what is the latent heat of the steam?

EXAMINATION PAPERS.

PHYSIOLOGY AND HYGIENE.

PHYSIOLOGY AND HYGIENE.

- 1. Name the ingredients of the blood.
- 2. Of what use is the albumen of the blood?
- 3. What is the distinguishing peculiarity of the fibrine of the blood?
 - 4. Describe the blood globules.
- 5. What is the rule for applying a tourniquet to arrest bleeding from an artery?
- 6. Through what passages is the air introduced into the air vesicles of the lungs?
- 7. How does the contraction of the diaphragm enlarge the cavity of the chest?
 - 8. Name five ingredients of expired air.
- 9. What becomes of the oxygen that disappears from the air in respiration?
- 10. What is the necessary rule, or criterion, for sufficient ventilation?
 - 11. Name and locate the cavities of the heart.
 - 12. Whence does the right auricle receive its blood?
 - 13. What is the function of the pulmonary artery?
 - 14. What veins carry arterial blood?
- 15. Why is the left ventricle stronger than the other portions of the heart?
- 16. Why does the movement of the blood in the capillaries differ from that in the arteries?
 - 17. How is the internal heat of the body produced?
- 18. How is the animal heat disseminated and equalized throughout the body?

- 19. How is the heat of the body maintained at a constant temperature?
 - 20. Define the process of nutrition called assimilation.
- 21. What are the transformations that caseine undergoes that it may become osteine?
 - 22. Describe a nervous filament.
 - 23. What is a nerve?
 - 24. What are the spinal nerves?
- 25. What is the general function of a nervous filament? 26-27. What two kinds of nervous filaments are there in the nervous system? State the function of each.
 - 28. What is the function of a nervous ganglion?
- 29. What two kinds of paralysis exist together after dividing a spinal nerve?
- 30. Where do the sensitive and the motor filaments of the spinal nerves unite with the spinal cord?
- 31. What is the difference in the function of the anterior and the posterior columns of the spinal cord?
 - 32. What is paraplegia, and how may it be occasioned?
 - 33. What is hemiplegia, and how may it be occasioned?
- 34. What effect is produced on respiration by fracture of the spine at the upper part of the back?
- 35. What are the functions of the fifth pair of cranial nerves?
 - 36. What is the function of the larynx?
- 37. Name the special senses presided over by the cranial nerves.
- 38. What portion of the brain is the organ of the mind? How do we know this?
- 39. What is the difference between a nervous impression and a conscious sensation?
- 40. How does the sympathetic system of nerves differ in its action from the cerebro-spinal?
- 41-43. Describe the following named parts of the eye: sclerotic coat, cornea, pupil.
- 44. Why can we not see all parts of a landscape directly in front of the eye, distinctly at the same time?
 - 45. What is the advantage of vision with two eyes?

- 46. Of what use are the eye lashes?
- 47. How do the vibrations of a sonorous body communicate with the auditory nerve?
- 48. How do the proportions of the infant differ from those of the adult?
 - 49. What is the difference between an infant and a child?
- 50. What is the only proper food for the infant before the appearance of its teeth?

EXAMINATION PAPERS.

CÆSAR

I Translate:

- Bello Helvetiörum confecto, totīus fere Galliae legāti, principes civitatum, ad Caesarem gratulatum convenerunt: intelligere sese, tametsi pro veteribus Helvetiörum injuriis populi Români ab his poenas bello repetisset, tamen eam rem non minus ex usu terrae Galliae quam populi Romani accidisse; propterea quod eo consilio florentissimus rebus. domos suas Helvetii reliquissent, uti toti Galliae bellum inferrent imperiòque potirentur, locumque domicilio ex magna copia deligerent, quem ex omni Gallia opportunissimum ac fructuosissimum judicassent, reliquasque civitates stipen-Petierunt, uti sibi concilium totīus diarias habērent. Galliae in diem certam indicere idque Caesaris voluntate facere liceret: sese habere quasdam res, quas ex communi consensu ab eo petere vellent. Ea re permissa, diem concilio constituērunt et jurejurando, ne quis enunciaret, nisi quibus communi consilio mandātum esset, inter se sanxērunt.
- 2. Haec quum animadvertisset, convocăto consilio omniumque ordinum ad id consilium adhibitis centurionibus, vehementer eos incusăvit: primum, quod aut quam in partem aut quo consilio ducerentur, sibi quaerendum aut cogitandum putărent. Ariovistum, se consüle, cupidissime populi Români amicitiam appetisse: cur hunc tam teměre quisquam ab officio discessurum judicăret? Sibi quidem persuadēri, cognitis suis postulătis atque aequitâte conditionum perspecta, eum neque suam neque populi Români gratiam repudiatūrum. Quod si furore atque amentia impulsus bellum intulisset, quid tandem vererentur? aut cur de sua virtute aut de

ipsīus diligentia desperārent? Factum ejus hostis periculum patrum nostrorum memoria, quum, Cimbris et Teutŏnis a Caio Mario pulsis, non minōrem laudem exercītus, quam ipse imperator, merītus videbātur; factum etiam nuper in Italia servīli tumultu, quos tamen alīquid usus ac disciplīna, quam a nobis accepissent, sublevārent. Ex quo judicari posset, quantum habēret in se boni constantia; propterea quod, quos alīquamdiu inermos sine caussa timuissent, hos postea armātos ac victōres superassent.

- 3. Ariovistus ad postulāta' Caesáris pauca respondit; de suis virtutībus multa praedicāvit: transisse Rhenum sese non sua sponte, sed rogatum et arcessītum a Gallis: non sine magna spe magnisque praemiis domum propinquosque reliquisse: sedes habēre in Gallia ab ipsis concessas: obsīdes ipsorum voluntāte datos: stipendium capere jure belli, quod victōres victīs imponére consuērint: non sese Gallis, sed Gallos sibi bellum intulisse: omnes Galliae civitātes ad se oppugnandum venisse, ac contra se castra habuisse: eas omnes copias a se uno proelio fusas ac superātas esse. Si itērum experiri velint, se itērum parātum esse decertāre: si pace uti velint, inīquum esse de stipendio recusāre, quod sua voluntāte ad id tempus pependērint. Amicitiam popǔli Romāni sibi ornamento et praesidio, non detrimento esse oportēre, idque se ea spe petisse.
- 4. Proximo die instituto suo Caesar e castris utrisque copias suas eduxit; paullumque a majoribus castris progressus, aciem instruxit hostibusque pugnandi potestătem fecit. Ubi ne tum quidem eos prodire intellexit, circiter meridiem exercitum in castra reduxit. Tum demum Ariovistus partem suārum copiārum, quae castra minora oppugnāret, misit. Acriter utrimque usque ad vespērum pugnātum est. Solis occāsu suas copias Ariovistus, multis et illātis et acceptis vulnerībus, in castra reduxit. Quum ex captivis quaerēret Caesar, quam ob rem Ariovistus proelio non decertāret, hanc reperiebat caussam; quod apud Germānos ea consuetūdo esset; ut matresfamiliae corum sortībus et vaticinationībus declarārent, utrum proelium committi ex usu esset, nec ne: eas ita dicēre: non esse fas, Germānos superāre, si ante novam lunam proelio contendissent.

H.

- 5. In one (1):
- (a) Parse gratulatum.
- (b) Govern imperio.
- (c) Give the rule for the mood of liceret.
 - 6. In two (2):
- (a) Give the rule for the mood of dicerentur.
- (b) Govern Ariovistum.
- (c) Govern aliquid.
- (d) Govern boni.
 - 7. In three (3):
- (a) What figure of syntax is there in non sine magna spe magnisque praemiis.
 - (b) Govern Gallis.
 - (c) Govern pace.
- (d) Give the principal parts of fusas esse, velint, pependerint.
 - 8. In four (4):
 - (a) Govern instituto.
 - (b) What part of speech is pugnandi? Govern it.
- (c) Give the different modes of expressing a double question.
- 9. Give five English derivatives from any of the roots of each of the following words: mittere, ducere, dicere, and the meaning of each.
 - 10. Translate into Latin :
 - (a) Necessity is the mother of arts.
 - (b) The grass returns to the plains.
 - (c) Ariovistus sends ambassadors to Caesar.
- (d) Your good will toward me, and mine toward you, are equal.

EXAMINATION PAPERS.

ANABASIS.

ANABASIS.

I.—Give a synopsis of Book II.

Translate:

2.— Εν τούτιμ Κλέαρχος ήπε, καὶ ἡρώτησεν, εὶ ήδη ἀποχεχριμένοι είεν. Φαλίνος δὲ ὑπολαδών εἶπεν " θὐτοι μὲν, ὡ Κλέαρχε, ἄλλος ἄλλα λέγει σὐ δ' ἡμῖν εἰπὲ, τί λέγεις." 'θ δ' εἶπεν " Ἐγώ σε, ὡ Φαλῖνε, ἄσμενος ξώρἄχα, οἶμαι δὲ καὶ οἱ ἄλλοι πάντες σύ τε γὰρ Ελλην εἰ, καὶ ἡμεῖς, τοσοῦτοι ὄντες δσους σὐ ὑρῆς · ἐν τοιούτοις δὲ ὄντες πράγμασι συμβουλευόμεθά σοι, τί χρὴ ποιεῖν περὶ ὧν λέγεις.

3.—Καὶ ἐτάχθησαν μὲν πρὸς αὐτοῦ οἱ τριάχοντα ἔτη γεγονότες · ἐπεὶ δὲ καὶ Κλέαρχον ἑώρων σπουδάζοντα, προσελάμβανον καὶ οἱ πρεσβύτεροι. Πολὺ δὲ μᾶλλον ὁ Κλέαρχος ἔσπευδεν, ὑποπτεύων μὴ ἀεὶ οὕτω πλήρεις εἶναι τὰς τάφρους ὕδατος (οὐ γὰρ ἦν ὥρα, οῖα τὸ πεδίον ἄρδειν)· ἀλλ' ἵνα ἤδη πολλὰ προφαίνοιτο τοῖς "Ελλησι δεινὰ εἰς τὴν πορείαν, τούτου ἔνεκα βασιλέα ὑπώπτευεν ἐρὶ τὸ πεδίον τὸ ὕδωρ ἀφεικέναι.

4.—" Πῶς ἄν οὖν, ἔχοντες τοσούτους πρὸς τὸ ὑμῖν πολεμεῖν, καὶ τούτων μηθένα ἡμῖν ἐπικίνδῦνου, ἔπειτα ἐκ τούτων πάντων τοῦτον ἀν τὸν τρόπον ἐξελοίμεθα, ὅς μόνος μὲν πρὸς θεῶν ἀσεβὴς, μόνος δὲ πρὸς ἀνθρώπων αἰσχρός; Παντάπῶι δὲ ἀπόρων ἐστὶ καὶ ἀμηχάνων καὶ ἀνάγκη ἐχομένων, καὶ τούτων πονηρῶν, οἴτινες ἐθέλουσι δι' ἐπιορχίας τε πρὸς θεοὺς, καὶ ἀπιστίας πρὸς ἀνθρώπους, πράττειν τι. Οὐχ οὕτως ἡμεῖς, ὡ Κλέαρχε, οὕτε ἀλόγιστοι οὕτε ἡλίθιοί ἐσμεν.

- 5.— Έπεὶ δὲ ἄμηντο, ἡμέρα τε σχεδον ὑπέφαινε, καὶ εἰς τὸ μέσον ήκον οἱ ἄρχοντες, καὶ ἔδοξεν αὐτοῖς, προφύλακας καταστήσαντας, συγκαλεῖν τοὺς στρατιώτας. Ἐπεὶ δὲ καὶ οἱ ἄλλοι στρατιῶται συνῆκθον, ἀνέστη πρῶτον μὲν Χειρίσοφος ὁ Λακεδαιμόνιος, καὶ ἔλεξεν ὧδε· "' ② ἄνδρες στρατιῶται, γαλεπὰ μὲν τὰ παρόντα, ὁπότε ἀνδρῶν στρατητῶν τοιούτων στερόμεθα καὶ λοχῆτῶν καὶ στρατιωτῶν πρὸσ δ' ἔτι καὶ οἱ ἀμςὶ ' Αριαῖον, οἱ πρόσθεν σύμμαχοι ὄντες, προδεδώκῆσιν ἡμᾶς.
- 6.—The Persians station themselves for the battle with their heads unprotected. He asked the heralds, if all this were false, and they said "yes." He asked them if they were targeteers, and they said "no.' They are unable to march rapidly. As the general himself said. He marches as rapidly as possible.
- 7.—As soon as they had said this, they rose up. And the enemy, as soon as they had heard this, departed. Do you, then, by the gods, advise us what seems to you most honorable and best, and what will hereafter bring you honor when related that Phalinus advised as follows.
- 8.—State where the first three verbs in 2 are found, and give the reason for the mood of the third.
- 9.—Write the synopsis of the first verb, and of the first participle, in 3, and account for the χ in the former.
- 10.—[a] Give the parts of ἐξελοίμεθα,—its analysis.
 [b] With what do ἀπόρων, ἀμηχάνων, &c. [in 4], agree, and how is that word governed?
- 11.—Explain the relationship of navy and nausea to $να\ddot{v}$ ς, of diphtheria to διφθέρα, of fire and fuel to $π\ddot{v}ρ$, of atom and anatomy to τέμνω, of ephemeral to $ημ\acute{e}ρα$, and give the derivation of telephone.

EXAMINATION PAPERS.

GREEK LESSONS.

GREEK LESSONS.

Translate:

- 'Υποψίαι μὲν ήσαν. ' Ην δὲ παρὰ τὸν Εὐφράτην πάροδος στενή μεταξὺ τοῦ ποταμοῦ καὶ τῆς τάφρου. ' Ανάγκη ἐστὶ μάχεσθαι. ' Ηνίκα δ' ἡν δείλη, ἐξαπίνπς οῖ πολέμιοι ἐπιφαίνονται ἐν τῷ πεδίψ. ' Επεὶ δὲ ὅρθρος ἡν, ἔρχεται πρὸς τὸν Χειρίσοφον. ' Επεὶ δ' ἡμέρα ἡν ὀγδόη. Καὶ ἡν μὲν σκοτος ἤδη. Μέχρι σκότος ἐγένετο. Οὺ γὰρ ἡν χόρτος. Οὺ γὰρ ἔστι πλοῖα. ' Ακούω δὲ, κώμας εἰναι καλάς. ' Ενθα δὴ πάλιν ἀθυμία ἡν.
- 2. 'Αθυμότερος ήν. ' Ησαν πολύ προθυμότεροι. Βασιλικώτατός τε καὶ ἄρχειν ὰξιώτατος. ' Ω θαυμασιώτατε ἄνθρωπε. Φοβεριώτατον δ' ἐρημία. Φεύγειν αὐτοῖς ὰσφαλέστερον ἐστιν, ἢ ἡμῖν. Καὶ θρασύτερος εἰμι νῦν ἢ τότε. Οι δὲ στρατιῶται ἔκοπτόν τε τὰς πύλας, καὶ ἔκερον, ὅτι ἀδικώτατα πάσχοιεν ἐκβαλλόμενοι εἰς τοὺς πολεμίους.
- 3. 'Ημεῖς ἐχεῖ πμὸς ταῦτα βουλευσόμεθα. 'Επειδὰν ἐχεῖσε ἔλθωμεν, βουλευσόμεθα. Σὺ οὖν, πρὸς θεῶν, συμβούλευσον ἡμῖν. Οῖ Σχύθαι τοξόται ἐτόξευσαν. 'Ο' Αναξίβιος ἔχλεισε τὰς πύλας. 'Ημὰς Βυζαντίου ἀποχλείσει. 'Εχάλεσε τοὺς ἀγγέλους. Κλέαργον δὲ χαὶ εἴσω παμεχάλεσε σύμβουλον. Αχούσατε οὖν μου, πρὸς θεῶν. "Ηδιστ' ἀν ἀχούσαιμι.
- Ταῦτα ἐγὰ ἀπαγγελῶ. 'Ο δὲ πάλιν ἢριότησε' "Σπονδὰς ἢ πόλεμον ἀπαγγελῶ;" 'Ενταῦθα ἔμεινε Κῦρος ἡμέρας τριάχοντα καὶ ἡχε Κλέαρχος ὁ Λακεδαιμόνιος φυγάς. Ταχύ

τοι δμῖν ἀποχρινοῦμαι. 'Απεχρίνατο Κλέαρχος. Καὶ ἐν ταύτη τῆ 'Αρμήνη ἔμειναν οἱ στρατιῶται ἡμέρας πέντε. Οὐχ ἔμειναν τοὺς ὁπλίτας.

- 5. You are the generals, but we are the soldiers. We advise you, Clearchus, to follow and obey Cyrus. We flee, and you pursue. I, Seuthes, am neither so thoughtless nor so foolish. We thought you an enemy. Send me away, and think me no longer a friend. Send away both me, and the army with me. We plot against them with good reason, for they have our property. Do not wait for others to come to you. You and I have the same enemies. We can now take pledges from them.
- 6. The soldiers encamp in the open air. Let Clearchus and Chirisophus take the lead, since they are also Lacedæmonians. With no good reason surely could you envy us. Let us no longer envy the wicked. We labor cheerfully, and acquire securely. First carry back word to the army, that there is need of silence. In the first place, Cyrus appears to be more modest than the rest; and in the second, to obey the most implicitly his elders. Callimachus was fonder of horses than Clearetus, and managed them with more confidence.
- 7. The soldiers were exceedingly angry with their geherals. I asked them how much gold they had. The two admirals were sick. On the next day, the messengers brought back word, that both Darius and and the rest of the Persians commended us. He said that the robbers had again assembled. He said that the robbers were again assembling. They endeavoured to pass by force.
- 8. His wife will persuade him. He sent his wife. They had golden flesh-combs. All the prizes were linen corselets. And, when they were sending the heralds to the Thracians, it was already midnight.

Do not make war against the Arcadians. When we have arrived there, we shall be at the door of Greece. The Thracians send heralds by night.

- 9. Give the derivation and composition of the first word in 1, and the composition and derivation of its English-Latin equivalent, explaining the force and appropriateness of each.
- 10. Give the derivation and composition of the first word in 2, compare it, state why the omicron in its stem is not omega before the terminational affixes of comparison, and form and compare an adverb from the same.
- 11. What need is there of the first word in 3, when it has the same meaning as the affixes of the verb?
- 12. Difference in meaning between the first word in 4, and Tabrá?
- 13. Write the parts of three verbs in the Greek you have translated.
- 14. Derive an English word and give its etymon, from each of the following Greek words: Σκηνή, πολύς, περί, ἀχούω, ἀλλήλων.
- 15. Derive and give the etymon of ichneumon, evangelist, archangel, telephone, rhinoceros.

ROCHESTER FREE ACADEMY Examination Papers. COMPOSITION AND READING. December, 1876.

COMPOSITION AND READING.

Second Year.

- 1. Define Emphasis.
- 2. Mention some common defects of articulation.
- 3. On which syllable is each of the following words accepted: Demonstrate, carboniferous, admirable, contemplate, morass.
- 4. Copy the following passage, and underline the emphatic words:
 - "The double night of ages, and of her,
 Night's daughter, Ignorance, hath wrapt and wrap
 All around us; we but feel our way to err:

The ocean hath its chart, the stars their map, And knowledge spreads them on her ample lap;

But Rome is as the desert, where we steer Stumbling o'er recollections; now we clap Our hands, and cry 'Eureka!' it is clear,— When but some false mirage of ruin rises near."

- . Give six rules for the use of capital letters.
- 6. Illustrate each of the rules you have given.
- 7. Give rules for the quotation marks and period, and illustrate each.
 - 8. Punctuate the following passage:
 - A hunter asked a boy Did the hare pass this way

2. The boy turned to him and asked whether the hare was his property

9. Combine the following group of statements into one complex sentence:

Augustus held a council in order to try certain prisoners.

This was while he was at Samos.

It was after the famous battle of Actium.

This battle made him master of the world.

The prisoners tried were those who had been engaged in Antony's party.

10. Vary the following sentences, by transposing the parts:

Swallows in the autumn migrate into warmer climates. He reads every morning after breakfast ten pages of Cicero.

At the dawn of day she ascended the hill with a merry heart, in company with her brother.

- Give two rules for the use of the comma.
- 12. Punctuate the following sentences:
 - 1. Time thought and observation are necessary to the learner.
 - The patient thoughtful and observing student will conquer difficulties and acquire much useful knowledge.
 - . Three times did Richard make a lane to me
 And thrice cried Courage father fight it out
 And full as oft came Edward to me.
 - Speaking of party Pope makes this remark
 There never was any party faction sect or cabal whatsoever in which the most ignorant were not the most violent.
- 13. Give a prose version of the following:

It was the schooner Hesperus

That sailed the wintry sea;

And the skipper had taken his little daughter, To bear him company.

The skipper, he stood beside the helm. His pipe was in his mouth,

And he watched how the veering flaw did blow The smoke now west, now south.

Then up and spoke an old sailor, Had sailed the Spanish Main, "I pray thee put into yonder port,

For I fear a hurricane.

"Last night the moon had a golden ring, And to-night no moon we see!" The skipper, he blew a whiff from his pipe, And a scornful laugh laughed he.

- 14. Write a composition of at least twenty lines on one of the following subjects:
 - 1. 'Sketch of the life of some eminent man.
 - Letters.
 - 3. Butterflies.
 - 4. American Holidays.

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Examination Papers.

FREE ACADEMY

 $\mathcal{A}LGEBRA$.

ALGEBRA.

- 1. What is a term of an algebraic quantity? A factor? A dimension? A coefficient? Define a trinomial.
- 2. Remove the signs of aggregation from a-(b-[c+d-(c+b)]+c).
- 3. Show by example of your own, how subtraction is effected by changing the signs of the subtrahend.
- 4. From the sum of $4ab-x^2$ and $3x^2-2ab$ take $2ax-2ab+x^2$.
 - 5. Multiply $4a^m b^n x$ by $-2a^s b^{sn} x^m$.
 - 6. Divide— $16m^3n^2x^n$ by— $4mnx^m$.
- 7. Multiply a^2-b^2 by a^4-b^4 and divide the product by a^2+b^2 .
- 8. By what quantity is $27r^3+125s^3$ divisible? Give prime factors of $(x^3-y^3)(2n^2+4mn+2m^2)(x^4-y^4)$.
- 9. Find the greatest common divisor of $x^3 + 3x^2 + 4x + 12$ and $x^3 + 4x^2 + 4x + 3$.
- 10. Of what factors must the least common multiple of several quantities consist?
- 11. Find the least common multiple of x^2-3x+2 and x^2-x-2 . Explain your work, showing that your result consists of the required factors.
 - 12. Reduce lowest terms the fraction $\frac{x^2+2x-3}{x^3+6x-7}$

13. Add
$$\frac{a}{a+b}$$
 and $\frac{b}{a-b}$

14. Multiply
$$\frac{ax-x^2}{(a+x)^2}$$
 by $\frac{x^2}{a^2-x^2}$.

15. Divide
$$x^2 + \frac{1}{x^2} + 2$$
 by $x + \frac{1}{x}$

16. Simplify
$$\frac{3abc}{bc+ac-ab} - \frac{\frac{a-1}{n} + \frac{b-1}{b} + \frac{c-1}{c}}{\frac{1}{a} + \frac{1}{b} - \frac{1}{c}}$$

Find the value of x in the following equations:

$$17. \quad \frac{x}{a} + \frac{x}{b-a} = \frac{a}{b+a}$$

18.
$$\frac{3x-1}{5} - \frac{13-x}{2} = \frac{7x}{3} - \frac{11(x+3)}{6}$$

- 19. After paying the seventh part of a bill and the fifth part, \$92 were still due; what was the amount of the bill?
- 20. Two casks contain equal quantities of beer; from the first 34 quarts are drawn, and from the second 80 quarts; the quantity remaining in the first cask is now twice that in the second. How much did each cask originally contain.

ROCHESTER FREE ACADEMY

Examination Papers.

NATURAL PHILOSOPHY.

Natural Philosophy.

- 1. What is natural philosophy?
- 2-3. Divide the following named properties of matter into the two classes: essential and non essential. Extension, divisibility, ductility, porosity, hardness, attraction, color and inertia.
- 4. How does molecular attraction differ from the attraction of gravitation?
- 5. Where upon the earth's surface will a body weigh the most, and where the least?
 - of where the least?

 5. Why will a body have no weight at the center of the earth?
- 7-8. What is meant by saying that the specific gravity of platinum is 2.150; and that of carbonic acid gas is 1.530?
- 9-11. Define indifferent, stable and unstable equilibriums.
 - 12. Why are not plumblines parallel?
- 18. By what experiment can you prove that a penny and a feather will both fall with equal velocities to the earth from the same height, when they are acted upon by gravity alone?
- 14-15. Define simple and compound motions?
 - 16. What is meant by resultant direction?
- 17. If the earth should cease revolving on its axis would a body at the equator weigh more or less than it now does? Why?
- 18. When a lever is in equilibrium the weight will be to the power as what?
 - 19. Of what use is the fixed pulley?
- 20. Of which mechanical power is the (wheel and axle) a modification?
 - 21. Of which are the wedge and screw modifications?
 - 22. To what is the pressure of a column of liquid proportional?

- 23. How can we calculate the presure upon the bottom of a vessel containing water?
 - 24. What is the science of hydraulics?
- 25. To what is the velocity of a liquid flowing from an aperture in a vessel equal?

PROBLEMS.

- A mass of silver weighs in the air 1050 ounces and in water 650 ounces: what is its specific gravity?
- 2-4. A body falls from a height to the ground in ten seconds of time, what is the whole distance through which it falls; what is the distance through which it falls the last second, and with what velocity does it strike the earth, no allowance being made for the resistance of the air?
- 5. If a mass of iron weighs 2000 pounds on the earth's surface, what would it weigh at the bottom of a mine one mile below the surface?
- 6. What weight will a power of 150 pounds sustain with a system of six movable pulleys, one cord passing around all of them?
- 7. A lever of second class is 15 feet long, at what distance from the fulcrum must a weight of 240 pounds be placed that it may be sustained by a power of 80 pounds?
- 8. The area of the bottom of a vessel is 4 square feet, the vessel is filled with water to a depth of 6 feet, what is the pressure of the water on the bottom of the vessel in ounces?

HONORARY.

- 1. An irregular fragment of stone weighed in the air 564 ounces and in water 514 ounces, what was the volume of the stone in cubic inches?
- 2-3. A body is projected downward with a velocity of 35 feet per second how far will it descend in five seconds of time, no allowance being made for the resistance of the air; what will be the velocity of the falling body at the end of the 5th second of its decent?
- 4. The length of a pendlum to vibrate once in 3 seconds of time at the equator is 351 inches, what must be the length of one to vibrate once in 2 seconds?
- 5. If two non-elastic bodies come into direct collision, one weighing 190 pounds and having a velocity of 50 feet per second; the other weighing 100 pounds and having a velocity of 25 feet per second, in what direction and with what velocity will they move after contact?

- 6. What will be the difference in weight which a power of 500 pounds can sustain when acting with a system of 4 movable pulleys with one cord passing around all of them, and when it acts with a system of 4 movable pulleys in which each has a cord of its own; no allowance being made for friction?
- 7. What must be the horse power of and engine to lift from the bottom of a mine 509 feet deep, 33 tons of coal in one minute of time?
- 6. If 50 gallons of flow from an orifice in the side of a vessel 16 feet below the surface of the water in the vessel in one hour, how many gallons will flow from an orifice the same size, 64 feet below the surface of the water in an equal time?

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Examination Papers.

COMMERCIAL ARITHMETIC.

Commercial Arithmetic.

- 1. Add \$101.05, \$2003.23, \$1002.65, \$9.01, \$34.75, \$67.09, \$25, \$1250.73, \$747.43, \$102.21, \$129.91, \$1201. 11, \$1101.03, \$3003.27, \$2121.21, \$93.93, \$501.51, \$6706. 90, and divide the amount by 101. Write the answer in words.
- 2. Bot. of Cone & Co., for cash, 1225 ft. lumber, at \$29.60 per M.; 1375 lbs. hay at \$20.80 per ton; 985 lbs. plaster, at \$1.10 per C.; 23½ yds. canvas, at 98 cents per yd.; 12½ lbs. nails, at 16 cents per lb. Make out a bill of the above as clerk.
- 3. Bot. of W. S. Moore, on my note at 30 days, payable at City Bank, 28 bu. 3 pks. 4 qts. clover seed, at \$3.50 per bu. Find cost and write the note.
- 4. Sold a pile of wood 34 ft. long, 5 ft. high, 1 ft. wide, at \$6:40 per cd., and received in payment, broadcloth, at \$4:50, per yd.; how many cords did I sell and how many yds. did I buy?
- 5. Bot. cotton at 8½ cents, sold it at 9 cents, and gained \$34; gain per cent and am't, invested?
- 6. Bot. stocks at $109\frac{1}{8}$, sold them at $109\frac{1}{16}$, and lost \$17.46; loss per cent, and annt. invested i
- 7. At what price must I mark cloth that cost \$1.90 per yd. that I may deduct 5 per cent for cash customers and yet gain 20 per cent on the cost?

- 8. A commission merchant sold 13½ bbls. apples, at \$2.50 per bbl., 91½ bu. potatoes, at 51 cents per bu., 920 lbs. pork, at 12½ cents per lb., and remitted the proceeds after deducting his commission, at 2½ per cent; amount of his commission and proceeds remitted?
- 9. A man purchases a bill of goods for which he is to pay \$7000 in currency, or \$5500 in gold; will he gain or lose by accepting the latter proposition, gold being 138½, and how much, in currency?
- 10. Jan. 12, 1875, I gave my note in payment for plastering and calcimining a room 36 ft. long, 12 ft. wide, 9 ft. high, at \$3 per sq. yd.; what was the aint. of the note, Feb. 13, 1876, interest at 7 per cent?

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Examination Papers.

BOOK-KEEPING.

Book-Keep $\iota\iota\iota\iota\jmath$.

- 1. What is book-keeping by double-entry, and what is its distinguishing feature?
- 2. What are the principal books of entry in the Italian method, and what is the use of each?
- 3. Into what classes are accounts divided, and for what is each class used?
- 4. What name is given to a person in business by himself, and what are his books called?
- 5. Of what are "To" and "By" each the prefix, and what is an acceptance?
 - 6. What is a promissory note, and what is a draft?
 - 7. What is negotiable paper, and what is a protest?
- 8. Write a negotiable note, receivable, and an unnegotiable note, payable.
- 9. Who is payee in each of the notes you have written, and what is the date of maturity of each note?
 - 10. Define Shipment, Consignment, and Balance.
- 11. What is the formula for journalizing, and how should an error in the Day-Book be corrected?
- 12. How do you post-mark when a debit and a credit are on the same line in the journal, and how is a trial-balance made?
- 13. In preparing to close the Ledger, what accounts receive the inventories; on which side and how are the entries made?
- 14. How is an account closed, and what accounts are closed into Balance?
- 15. Into what account is Loss and Gain closed, and by what methods do you find the present worth?

- 16. By what methods do you find the net loss, and how should an error in the Ledger be rectified?
- 17. When an account-sales is rendered and the net proceeds retained, what is the journal entry of the consignor? Of the consignee?
- 18. With what should notes and drafts be debited and credited, and what is the difference between Shipment and Mdse.?

Journalize :

- 19. Investment of mdse. cash, another's note, a house and lot, and an account against another. Sales of mdse. for cash, another's note, your note, and on acct.
- 20. Purchase of a house and lot and mdse., and payment by mortgage on the property and by cash. Investment, by a partner, of mdse., cash, a mortgage on a farm, and money deposited in City Bank.
- 21. Sale of City Bank stock and receipt of payment by check on City Bank, the note of another, and your note; your note not yet due and discount allowed.
- 22 Failure of a party whose note you hold; payment of part in cash, part in mdsc., part by another's note, and the balance lost. Shipment of mdsc. to New York, to be sold on commission, and payment of drayage and insurance on the same by check on Flour City Bank.
- 23. Receipt of make to be sold on commission, and payment for advertising and insuring the same, in cash. Assumption by a firm of a partner's indebtedness to two other persons, and of his note outstanding.
- 24. Sale of a farm, and receipt of payment by the offset of an account we owe, by check on City Bank, and by another's note on which interest has accrued. Discount of firm's note, and payment of amt. due by check on Flour City Bank
- 25. Acceptance by the firm of a draft on them. Payment of cash to a partner for private use. Receipt of an account-sales without remittance. Payment of store rent and clerk hire in cash. Payment of the firm's note with interest due thereon by giving a new note for the amt.

ROCHESTER FREE ACADEMY Examination Papers. Ancient History. December, 1876.

Ancient History.

- 1. State the divisions of the Caucasian race and the nations included in each.
- 2. In what places did the earliest historic nations arise? What circumstances favored their growth there?
- 3. Give the three periods of Egyptian history, and a brief account of them.
 - 4. Describe the system of caste.
 - 5. What can you say of art in ancient Egypt?
- 6. What of astronomy and architecture among the Chaldeans?
 - 7. What countries did the Assyrian Empire embrace?
- 8. Under whose rule was the later Babylonian Kingdom established? How long did it last? Describe the city of Babylon?
- 9. Divide the Jewish history into periods. What was the form of government during the first?
- 10. Give a summary of the first and fourth periods of Hebrew history.
- 11. State the location of Phœnicia. What cities did the Phœnicians found?
- 12. In what way did the Phœnicians most contribute to the progress of civilization?
- 13. Speak briefly of the language and the religion of the Hindoos.

- 14. Compare the religion of the Persians with those of the more ancient nations.
- 15. Which were the chief commercial nations of antiquity?
- 16. How can you account for the fact that all the Asiatic Empires declined and passed away?
- 17. What points are to be noticed in the geography of Greece?
- 18. What author's works present the best picture of early Greek life? Give the story of the siege of Troy?
- 19. At what time was the colonizing spirit most active among the Greeks and at what places were the principal colonies planted?
 - 20. Describe the Spartan system of education. What were its results?
 - 21. Give an account of the first Persian invasion.
 - 22. Speak of the age of Pericles.
 - 23. State the occasion, length and results of the Peloponnesian war.
 - 24. Give briefly the career of Alexander the Great.
 - 25. Give an outline of Greek literature and speak of the arts in Greece.

ROCHESTER

FREE ACADEMY

Framination Papers.

GEOMETRY --- B.

GEOMETRY.-B.

- 1. Define Geometry and name the geometrical magnitudes.
- 2. When are two angles said to be complements? when supplements?
- 3. In what three cases are triangles equal? In what cases are parallelograms equal in area?

To what is the square described on the difference of two lines equivalent? To what is the difference of the squares described on two lines equivalent?

- 4. Demonstrate the following theorems: The square described on the hypotenuse of any right-angle triangle is equivalent to the sum of the squares described on the other two sides.
- 5. If in any triangle a line be drawn from any angle to the middle of the opposite side, twice the square of this line, together with twice the square of one half the side bisected, will be equivalent to the sum of the squares of the other two sides.
- 6. Define proportion. When is a proportion taken inversely? when alternately or by alternation?

What are mutually equiangular polygons? similar polygons?

- 7. Demonstrate the following theorems: The perimeters of similar polygons are to one another as their homologous sides; and their areas are to one another as the squares of their homologous sides.
- 8. If the vertical angle of a triangle be bisected, the bisecting line will cut the base into segments proportional to the adjacent sides of the triangle.
- 9. What is an arc of a circle? a chord? a tangent? a secant? Represent each by a figure.
- 10. Demonstrate the following theorems: An angle at the circumference of a circle is measured by one half the arc on which it stands.
- 11. When two chords intersect each other within a circle, the angle thus formed is measured by one half the sum of the two intercepted arcs.
- 12. Solve the following problem: The tangent of a circle is 40, and the external segment of a secant passing through the center is 4; what is the diameter of the circle?

ROCHESTER

FREE ACADEMY

Examination Papers.

4RITHMETIC

ARITHMETIC

- 1. Define common divisor, greatest common divisor, common multiple, least common multiple.
- 2. A farmer wishes to put 364 bushels of corn and 455 bushels of oats into the least number of bins possible, that shall contain the same number of bushels without mixing the two kinds of grain; what number of bushels must each bin hold?

If A can build 14 rods of fence in a day, B 25 rods, C 8 rods and D 20 rods, what is the least number of rods that will furnish a number of whole days' work to either one of the four men?

- 3. State the general principles of fractions, and also the general law embracing these principles?
- 4. A father divided a piece of land among his three sons; to the first he gave 12½ acres, to the second ¾ of the whole, and to the third as much as to the other two; how many acres did the third have?
 - 5. Give the table of square measure.

What will be the expense of plastering a room 40 ft. long, 36½ ft. wide, and 22½ ft. high, at 18 cents a sq. yd., allowing 1375 sq. ft. for doors, windows and base board?

- Give the table of avoirdupois weight.
- From \$ of 3 T. 10 cwt. subtract 4 of 7 T. 3 cwt. 26 lbs.
- 7. Reduce $\frac{3}{7}$ of a mile to integers of lower denominations.
- 8. If 12 men working 9 hours a day for 15⁵/₂ days, were able to execute \$\frac{1}{2}\$ of a job, how many men may be withdrawn and the job be finished in 15 days more, if the men are employed only 7 hours a day?
- 9. A man invested in mining stock when it was 4 per cent. above par, and afterwards sold his shares at 5½ per cent. discount; his loss in trade was \$760; how many shares did he purchase?

- 10. Define interest, simple and compound, principal, amount.
 What elements enter into operations of interest?
- 11. If \$1756.75 be placed at interest June 29, 1860, what amount will be due Feb. 12, 1863, at 7 per cent.?
- 12. Which is more advantageous, to buy flour at \$6.25 a barrel on 6 months, or at \$6.50 a barrel on 9 months, money being worth 8 per cent.?
- 13. A, B and C are employed to do a piece of work for \$26.45, A and B together are supposed to do $\frac{1}{2}$ of the work, A and C $\frac{1}{2}$, and B and C $\frac{1}{2}$, and are paid proportionally; how much must each receive?
- 14. What is the distance through a cubical block, measured from one corner to the opposite diagonal corner, the side of the cube being 6 feet?
- 15. What must be the length of the side of a cubical bin that shall contain the same quantity as one that is 24 feet long, 18 feet wide and 4 feet deep?

ROCHESTER

FREE ACADEMY

Framination Papers.

GEOMETRY -- A.

GEOMETRY --- A.

- 1. What is the measure of a trapezoid?
- 2. What conditions are necessary to render triangles equal?
 - 3. What are similar figures?
 - 4. When is a proportion taken inversely?
 - 5. In what three cases are triangles similar?
 - 6. What is a chord of a circle?
 - 7. What is a secant of a circle?
- 8. To what is the square described on the difference of two lines equivalent?
- 9. To what is the difference of the squares described on two lines equivalent?
 - 10. How many points may two lines have in common?
 - 11. To what is the exterior angle of a triangle equal?
- 12. To what is the sum of the interior angles of a polygon equal?
- 13. What is the measure of an angle at the circumference of a circle?
- 14. What is the measure of an angle at the center of a circle?

- 15. If a line is drawn perpendicular to the center of a chord, through what other points will it pass?
 - 16. Mention all the different kinds of quadrilaterals?
- 17. Prove that the angles at the base of an isosceles triangle are equal, and the converse theorem.
- ·18. If the angle at the vertex of an isosceles triangle is two-sevenths of a right angle, what will each of the others be? Why?
- 19. Given two irregular pentagons, construct a pentagon similar to the first and equivalent to the second.
 - 20. Prove that equal chords in the same circle are equal.
- 21. Prove that the square described on the hypothenuse of a right angled triangle is equivalent to the sum of the squares described on the other two sides.
- 22. Prove that in an obtuse angled triangle, the square on the side opposite the obtuse angle, is equal to the sum of the squares on the other two sides, plus twice the rectangle contained by either sides about the obtuse angle, and that side produced to meet the perpendicular let fall from the vertex of the opposite angle.

ROCHESTER

FREE ACADEMY

Examination Papers.

READING AND COMPOSITION.

Reading and Composition.

THIRD YEAR.

T

- Define Style, and give the classification under this head.
- 2. What is essential to Grammatical correctness?
- 3. Define Purity, Concord, Propriety and Precision.
- 4. How is Grammatical correctness to be tested?
- 5. What characteristics are essential to "established usage"?
- 6. What principles should guide us when usage is divided?
- 7. What are Barbarisms?
- 8. Define a Solecism—an Impropriety.
- 9. Define Tautology, Redundancy, Deficiency.
- 10. What is Figurative Language, and what does it tend to promote?
 - 11. Define Metaphor, and give an original example.
 - 12. Convert your Metaphor into a Simile.
- 13. Write in figurative language, "The rising sun shines on the top of the mountains."

II.

Point out, name and correct the defects in the following sentences:

- 1. "The freight train should have side-tracked at the junction, but, instead of doing so, kept right on."
- 2. "His anticipations of the future, were of the gloomiest nature."

- 3. "William Shakespeare was a sun among the lesser lights of English poetry, and a native of Stratford-on-Avon."
- 4. "He told his friend that if he did not feel better in half an hour he thought he had better return."
- 5. "At this period an event transpired that destroyed the last hopes of peace. The King fell from his horse and died two hours after the fall, which was occasioned by his horse's stumbling on a mole-hill, while he was on his way from reviewing his soldiers."
- 6. "The veracity of this story is questionable, and there is the more reason for doubting the truth of the narrator, because in his remarks on the observation of the Sabbath he distinctly alludes to a custom that can be shown never to have existed."
- 7. Write out the following paragraph, correcting the faults in construction and arrangement, and punctuating correctly:—

"That the earth itself is a great magnet, I propose as the problem be solved before we separate, but the short duration of a single lecture will permit me, to attack this problem only in the most semenal manner; and having proved that the earth is a magnet, it will not be allowed me the pleasure to examine with any minuteness the characteristics of this huge lodestone, such as the position of its poles, the path of its equator, and those mysterious variations in the direction and intensity of its force, which latter seem to be in subjection to emanations from the sun—changing with the apparent daily and yearly revolutions of that orb and pulsating in sympathy with the huge waves of fire which sweep over its surface; for, it seems probable, that on any sudden agitations of the sun's surface, the magnetism of the earth receives a profound disturbance in its equilibrium."

ш.

GRAY'S ELEGY.

About what time was the *Elegy* begun, and when finished? What reasons can you give for its popularity? What are its *leading thoughts*, or *ideas*? What stanzas contain each one? How many groups of stanzas are there? What would you call the most familiar quotation?

"The curfew tolls the knell of parting day, The lowing herd wind slowly o'er the lea, The plowman homeward plods his weary way, And leaves the world to darkness and to me."

Give the derivation of the word curfew? What various explanations of this word? What was the curfew bell? Has this custom been continued in England? Tolls: what is the meaning here? What is the force of this particular word? Why not use rings instead of tolls? What is the effect of specific words? Illustrate this by some familiar quotation. Force of towing? Is herd singular or plural? The word wind is written both with and without the s: which is correct? How did Grav write it? O'er is poetical for what? Why contracted, and by what authority? Is lea used in poetry, prose, or both? Give its synonym. Why is plowman used? What synonym can you suggest? What is the subject of leaves? What is the merning of world? What figure is used? A famous author has criticised these lines by saving that the herd and the plowman must have been several hours behind their usual time for coming home, if the curfew was ringing; what reply do you make to this criticism? Line 20, "shall rouse them": what is the force of shall in this line? What would will mean? What is meant by "lowly bed"? Line 26, "Their furrow oft the stubborn glebe has broke": what word-form in this line has now fallen out of use? What is meant by furrow? Line 33, "boast of heraldry," give the meaning? Line 39, "fretted vault." Line 58, explain what is meant by "little tyrants"? What are the last three stanzas called?

Give a brief sketch of the life and writings of Gray.

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Framination Papers.

ASTRONOMY

Astronomy.

- 1. State the three fundamental points of the Copernican system of Astronomy.
 - 2. What is an ellipse?
- 3. If the number of stars visible to the naked eye is 6000, what is the greatest number that an observer can see at one time? Why?
 - 4. What is the milky way?
 - 5. What is the situation of the zodiacal constellations?
- 6. What reason have we for believing that there are other universes beside our own?
- 7. What does the nebular hypothesis suppose in regard to the original condition of the matter of the universe?
 - 8. Name the heavenly bodies comprising the solar system?
- 9. What is the relation of the north and the south pole of the of the sun to the earth, when the spots cross its disk in apparently straight lines? What is their relation when the spots cross in lines curving downward?
- 10. Explain why astronomers have assigned different periods for the time of the sun's rotation on its axis.
 - 11. What are the sun's spots believed to be?
- 12. What reason have we for supposing that the sun is a variable star; and what is its period of variation?
 - 13. What will probably be the future condition of the sun?
- 14. What led astronomers to suspect the existence of the planet Neptune, before its discovery?
- 15. In what directions do the planets and their satellites move in
- 16. Name the planets in the order of their sizes, commencing with the smallest?
- 17. What does a circular horizon at sea prove with regard to the shape of the earth?

- 18. Describe the variation of the velocity of the earth in its orbit?
- 19. Why are the days, during the summer of the north temperate zone, longer than the nights?
- 20. Why are the days and nights at the poles each six months in length?
- 21. What is the greatest altitude the sun attains at the poles at mid-day? Why?
- 22. State the two combined causes to which the change of the seasons is due?
- 23. What is the relation of the north and the south pole of the earth to the sun at the time of the autumnal and the vernal equinox?
- 24. How do you account for the fact that the moon always presents the same side to the earth?
- 25. Explain why we can often see, during time of a new moon, the remainder of its disk faintly illuminated.
- 26. State the positions of the moon in its orbst when it presents the following phases: new moon, crescent, first quarter, gibbous and full?
- 27. Under what circumstances will an annular eclipse of the sun take place?
- 28. Under what circumstances will a partial eclipse of the moon take place?
- 29. Name and describe the planet which closely resembles the earth in its physical aspects.
- 30. What would the great flattening of the planet Jupiter at its poles indicate in regard to the time of its axial rotation?
 - 31. What are the chief characteristics of the planet Saturn ?
 - 32. Give the history of the discovery of the asteroids.
- \$. Why may November showers of meteors be expected at intervals of about 33 years?
 - 34. Define declination and right ascension.
- 35. If an observer's latitude is 20° north of the equavtor, what stars to him will be north circumpolar?
 - 36. Why is the solar day longer than the sidereal?
 - 37. Name the planets which can never be at inferior conjunction.
- 38. Name the planets which can present phases like those of the moon.
 - 39. Explain why the solar year is shorter than the sidereal.
- 40. Describe the method by which the distance of a fixed star from the earth can be determined.

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Examination Papers.

PHYSIOLOGY AND HYGIENE.

Physiology and Hygiene.

- 1-2. Define Physiology and Hygiene.
- 3. In what way is the material of the long bones arranged to secure strength and lightness?
- 4. What benefit do we derive from the natural curvatures of the spinal column?
 - 5. What are the muscles?
- 6. Name the two classes of voluntary muscles and describe the function of each.
 - 7. Describe that by which a muscle is attached to a bone.
- 8. How should exercise be taken that it may be the most beneficial?
- In order to avoid lateral curvature of the spinal column what precaution should be observed.
 - 10. What is the definition of food?
 - 11. Name the principal inorganic ingredients of the food.
- 12. Of what use is lime in the food and in what two compounds does it exist?
 - 13. Name the organic ingredients of the food.
 - Describe the action of saliva upon starch.
 - 15. What is an emulsion.
 - 16. Describe the uses of the adipose tissue in the animal body.
- 17-18. Name the ingredients of the food which are not decomposed in the animal system; also, name those which are decomposed.
- 19. Name the principal ingredients of the food which the following substances contain, flour, eggs, cheese.
 - 20. Why is milk the only food needed for infants?
 - 21. What is the object of the digestion of the food?
 - 22. Name the different parts of the alimentary canal.

- 23. What are the organs of mastication; of what are they composed? Name their different parts.
- 24. Name and give the number of the different kinds of permanent teeth in each jaw.
 - 25. State the functions of each kind.
 - 26. Of what use is the saliva?
 - 27. By what is the digestive fluid of the stomach secreted and what is its function?
- 28. Name the organic ingredients of the food which are not digested in the stomach and state where their digestion takes place.
- 29. Describe the function of the digestive fluid secreted by the
- follicleles of the Lieberkühn.

 30. Describe the situation and function of the pancreatic gland.
- 31. By what is the peristaltic action of the alimentary canal accomplished and of what use is this action?
- 32. Describe the valvulæ conniventes and villi of the small intestine.
- 33. What does the blood of the potal vein contain after the digestion of the food; into what organ does this vein convey the blood? Name the blood vessel by which the blood leaves this organ.
- 34. What becomes of the digestive fluids during the digestion and absorption of the food ?
- 35. What portion of the food is absorbed from the intestine by the lacteals, and in what way does this food gain admission to the blood?
- 36. What changes take place in the elements of the food after their absorption into the blood vessels?
 - 37. What is the situation of the liver ?
 - 38. What are the two functions of this organ?
- 39. Why do children need more food in proportion to their size than adults?
- 40. Why should food be taken at regular periods and not frequently?

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GERMAN READER.

German' Reader.

T.

Translate:

Burg.—Treibt es nicht weiter, Lord, es könnt' euch reuen!
Berließ ich meines Herrn gerechte Fahnen,
Lud auf mein Haupt den Namen des Berräthers,
Um von dem Fremdling Solches zu ertragen?
Was thu' ich hier und fechte gegen Frankreich?
Benn ich dem Undankbaren dienen folk,
So will ich's meinem angebornen König.

II.

What case do nouns take, when they denote indefinite time?

III.

When an intransitive verb is used transitively, in what case is its object?

IV.

How is the direct object used in German?

- 1.
- 2.
- 3.

4.

V.

Adjectives or adverbs, governing the dative case, express what?

- 1.
- 2.
- 3. 4.
- 5.
- 6.

-	
	VI. When is the dative case governed by nouns?
i	VII. The verb crffdren requires what preposition?
	VIII.
-	Translate into German: We will not remember the wrong.
Ì	IX.
	How is the genitive absolute used in German?
1	1.
١	2.
	3. 4.
	4. X.
-	What is said about the repetition of the article?
į	dat is that works the reposition of the article.
-	
I	
ı	

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Examination Papers.

GREEK LESSONS.

December, 1876.

Greek Lessons.

- 1. Name some of the most important advantages of studying Greek.
- 2. Explain the difference in the use of the term accent, as applied to Greek, and to English, words, and show why the ictus and the accent do not always fall upon the same syllable in Greek.
- 3. What distinction is lost to the ear in recitatiou, if we "pronounce by the Greek accent," as it is called; or, more properly, confound the ictus and accent in Greek words? E. g. λύομεν and λύωμεν are where made, and what is the meaning of each?
- 4. Write the (euphonic) verbal affixes of the optative, infinitive and participal moods, in the active and passive, voices.
 - 5. Distinction between the imperfect and second acrist tenses in form? In signification?
 - 6. Define the optative mood—the middle voice.
 - 7. Write the three principal parts, and the second arrist, of $\partial \epsilon a \lambda a \mu \beta d \nu \omega$. Explain the process of augmenting this verb.
 - 8. Where shall we look for the oldest form of a verb?
 - 9. Write the affixes of the second declension.

10. Decline socia.

11. What Greek words are used in English, instead of the cumbrous compounds, that cannot-be-cut-in two-any more, that-which-shows-itself, turning-with-the sun, A-between-the-rivers-country?

TRANSLATE:

- 11. Κτησίας λέγει. Κυρος συλλαμβάνει 'Ορόντην. 'Εντεύθεν εξελαύνει σταθμούς πέντε, παρασάγγας τριάχοντα. 'Αγασίας Στυμφάλιος λοχάγος τιτριώσκεται. Αχστής δὲ προσέργεται.
- 12. Κῦρος τὴν Κιλισσαν εἰς τὴν Κιλιχίαν ἀποπέμπει. Τἢ δ' ὑστεραίψ μεταπέμπεται τοὺς στρατηγούς Λείπουσιν οἱ βάρβαροι ἀμαχητὶ τὸν λόφον. Κῦρος δὲ μετὰ τῶν ἄλλων ἐξελαύνει διὰ Καππαδοχίας. Κλέαργος καὶ οἱ ἐκείνου. Θἱ δὲ ἀμφὶ Τισσαφέμνην καὶ ᾿Αριαῖον. Θἱ ἀπὸ τῶν ἐν δεξιῷ οἰχιῶν. Πέμπει Λύχιον τὸν Συραχόσιον καὶ ἄλλον ἐπὶ τὸν λόφον.
- 13. Δεξιάν ελαβον. *Ελαβον τῆς ζώνης τὸν 'Ορόντην ἐπὶ θανάτψ. Πληγάς ἐνέβαλεν. 'Οκτώ μόνους κατέλιπον. Διέβαινον τὴν γέφυραν. Αὐτὸς ἐπεβούλευεν. 'Ως δ' ἡ τροπὴ ἐγένετο, διασπείρονται καὶ οἱ Κύρου ἑξακόσιοι. Λέγεται τῆς τελευτῆς τυχεῖν. 'Αλλά φυγῆ ἄλλος ἄλλη ἐτράπετο. Απέθανεν ὑπὸ Νικάνδρου. Διαλαμβάνουσι τὸ ἀπὸ τῶν αἰχμαλώτων ἀργύριον γενόμενον.
- 14. Let us take counsel. Let them learn both to rule and to be ruled. Clearchus, if you wish, speak. But, if they will, let them remain. Let Proxenus march. Clearchus is not willing to journey with Ariæns. Let us not march with Cyrus. O Lacedæmonians, let us consult together. Let them march, if they will.

- 15. Mithridates therefore comes again to Orontes. But Seuthes escapes into the stronghold. He descends into the villages upon the springs of the river Centrites. Proxenus therefore ascends into the citadel above the plain. He escapes into the village over the plain which lies along the river Marsyas.
- 16. Cyrus sends back the two messengers, and Orontes with them. Tissaphernes falsely accuses Cyrus of plotting against his brother. Tissaphernes and those with him burn the wood from the very houses. They burn the wood from the same houses. They burn the wood from the very houses. The soldiers themselves gather wood from the same place. The same soldiers gather wood. Upon the same day they themselves bring him to Chirisophus. They bring the man himself to Clearchus. You yourselves are burning the houses. And let us take some of the colts ourselves.

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Examination Papers.

 $\mathcal{A}NABASIS$.

December, 1876.

ANABASIS.

- 1.—a. Give some general account of the writer of the Anabasis, naming his most eminent instructor, and his friend that introduced him to Cyrus.
- b. State the origin and cause of Cyrus's expedition, where the forces assembled for the setting out, in what general direction they marched, where the battle took place, how many were engaged on each side, and how the fight terminated.

TRANSLATE:

- 2.—He threw off his purple cloak where he happened to be standing. He gave the soldiers permission to take whatever they pleased. As he was speaking, they both sneezed. After this, permission to depart is given to all who wish. He feared lest he should be intercepted. They rose, arrayed as handsomely as was in their power. He rushes forward, as one would run for safety.
- 2.—Πρὸς δὲ βασιλέα πέμπων ἢξίου. ἀδελφὸς ὤν αὐτοῦ, δοθἢναί οἱ ταὐτας τὰς πόλεις μᾶλλον, ἢ Τισσαφέρνην ἄρχειν αὐτῶν : καὶ ἡ μήτηρ συνέπραττεν αὐτῷ ταῦτα: ὤστε βασιλεὺς τῆς μὲν προς ἐαυτὸν ἐπιβουλῆς οὐχ ἤσθανετο. Τισσαφέρνει δὲ ἐνόμιζε πολεμοῦντα αὐτὸν ἀμφὶ τὰ στρατεύματα ἀπανὰν ιωστε οὐδὲν ἢχθετο αὐτῶν πολεμούντων : καὶ γὰμ ὁ Κῦρος ἀπέπεμπε τοὐς γτγνομένους δασμοὺς βασιλεῖ ἐχ τῶν πόλεων, ὧν Τισσαφέρνης ἐτὐγχανεν ἔχων.

- 4.—Καταβάς δὲ διὰ τούτου τοῦ πεδίου ἤλασε σταθμούς τέτταρας παρασάγγας πέντε καὶ εἴκοσιν, εἰς Ταρσούς, τῆς Κιλικίας πόλιν μεγάλην καὶ εὐδαίμονα. Ἐνταῦθα ἤσαν τὰ Συεννέσιος βασίλεα, τοῦ Κιλίκων βασιλέως · διὰ μέσης δὲ τῆς πόλεως ῥεῖ ποταμός, Κύδνος δυσμα, εὐρος δύο πλέθρων. Ταύτην τὴν πόλιν ἐξέλιπον οἱ ἐνοικοῦντες μετὰ Συεννέσιος εις χωρίον ὀχυρόν ἐπὶ τὰ ὅρη, πλην οἱ τὰ καπηλεῖα ἐγοντες · ἐμειναν ὀὲ καὶ οἱ παρὰ τὴν θάλατταν οἰκοῦντες ἐν Σόλοις καὶ ἐν Ἰσσοῖς.
- 5.— Ταῦτα οἱ στρατηγοὶ Κύρψ ἀπήγγελλον ὁ δὶ ὁπέσγετο, ἀνδρὶ ἐχάστψ δώσειν πέντε ἀργυρίου μνὰς, ἐπάν εἰς Βαβυλώνα ἤχωσι, χαὶ τὸν μαθὸν ἐντελη, μέχρι ἄν χαταστήση τοὺς Ελληνας εἰς Ἰωνίαν πάλιν. Τὸ μὲν δη πολῦ τοῦ Ἑλληνικοῦ οὐτως ἐπείσθη. Μένων δὲ, πρίν δηλον εἰναι, τὶ ποιήσουσιν οἱ ἀλλοι στρατιῶται, πότερον εἰνοιται Κύρψ ἢ υῦ, συνέλεξε τὸ αδτοῦ στράτευμα χωρις τῶν ἄλλων, χαι ἔλεξε τάδε
- 6.— Ενθα δή σὺν πολλή σπουδή χαθίσταντο, Κλέαρχος μὲν τὰ δεξιὰ τοῦ χέρατος ἔχων, πρὸς τῷ Εὐφράτη ποταμῷ, Πρόξενος δὲ ἐχὸμενος, οἱ δι ἄλλοι μετὰ τούτον · Μένων δὲ [χαὶ τὸ στράτευμα] τὸ εὐώνυμον χέρας ἔσχε τοῦ Ἑλληνιχοῦ. Τοῦ δὲ βαρβαριχοῦ (ππεῖς μὲν Παφλαγόνες εἰς χιλίους παρὰ κλέαρχον ἔστησαν ἐν τῷ δεξιῷ χαὶ τὸ Ἑλληνιχὸν πελταστιχόν · ἐν δὲ τῷ εὐωνὑμῳ 'Αριαῖός τε ὁ Κύρου ὕπαρχος χαὶ τὸ ἄλλο βαρβαριχόν.
- $7.-\Delta o\theta \tilde{\eta} \nu \alpha$ and $o\tilde{t}$ in 3—where made and how governed?
- 8.—Καταβάς in 4—where found, its composition, and with what does it agree?
- 9.—'Ακήγγελλον in 5—write this verb in the 1st a. ac. ind. 3d s.
- 10. Καθίσταντο, in 6—its composition, its true root, and how was that strengthened in the present?
- 11.—Give the English Greek equivalents for the following English: To-write far-off, a far-off-writing, a word-fighting, City-of-the-sun, City-of-Indiana, Ten-city (or Ten-cities), science-of-putting men(or things)-in-order.

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Examination Papers.

LATIN GRAMMAR.

December, 1876.

Latin Grammar.

- 1. What are the divisions of grammar called?
- 2. Define Orthopy. When does g have its soft sound? When does t have the sound of sh?
- 3. How is i final pronounced? What words are exceptions to the rule?
 - 4. What do the marks of quantity denote?
 - 5. Give the two principal rules of accent.
- 6. Separate the following words into syllables and give the reasons for each: munera, morior, athleta.
- 7. What is declension? How are the declensions of uouns distinguished?
- 8. Decline insula. What nouns of the first declension are feminine?
- Give the endings of nouns of the second declension.
 Why are the nouns ending in er divided into two classes?
 Decline vir.
- 10. Decline opus and virgo. State the rule for the gender of each.
- 11. What participles are declined like adjectives of the first and second declensions? What ones like adjectives of the third?
 - 12. How are adjectives of the third declension classified?
- 13. Decine asper, dulcis, brevior, nullus, and give the other adjectives having the same peculiarity of declension as the last.

- 14. How many degrees of comparison are there? How are the last two denoted? Compare facilis, bonus, glaber.
- 15. Give the simple demonstrative pronouns. Decline qui.
 - 16. What moods have verbs, and what do these denote?
 - 17. How are the different conjugations characterized?
- 18. What is the first root of verbs? How are the second and third roots formed in all the conjugations?
- 19. Why is sum called an auxiliary verb? Give a synopsis of the verb sum in the first person, singular number.
- 20. Conjugate the subjunctive mood of amo, in the active voice.
- 21. Write all the participial formations of the four conjugations, in the active and passive voices.
- 22. Give the synopsis of the part formed from the third root of moneo, in the passive voice.
 - 23. Inflect the imperative mood of rego in both voices.
 - 24. Write the infinitive mood of audio in both voices.
 - 25. Parse, ille dicit, tu es bonus homo.

ROCHESTER

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Examination Papers.

 $C \mathcal{L} ESAR$

December, 1876.

$C \mathscr{E} S A R.$

I. By what Roman general were the Gallic campaigns conducted? State what facts you can regarding his life.

In what year did these campaigns begin? End?

In what country or countries (modern name or names) were they carried on?

II. Translate:-

Die constituta caussae dictionis Orgetorix ad judicium omnem suam familiam, ad hominum milia decem undique coëgit, et omnes clientes obaeratosque suos, quorum magnum numërum habebat, eodem conduxit: per eos, ne caussam dicert, se eripuit. Quum civitas, ob eam rem incitata, armis jus suum exséqui conarētur, multitudinemque hominum ex agris magistrātus cogerent, Orgetorix mortuus est; neque abest suspicio, ut Helvetii arbitrantur, quin ipse sibi mortem consciverit.

Parse die. In what case and construction is magistratus? Give the principal parts of mortuus est. Of consciverit.

III. Translate —

Extrêmum oppidum Allobrögum est proximumque Helvetiorum finibus, Geneva. Ex eo oppido pons ad Helvetios pertinet. Allobrogibus sese vel persuasaros, quod nondum bono animo in populum Romanum viderentur, existimābant, vel vi coactūros, ut per suos fines eos ire paterentur. Omnibus rebus ad profectionem comparātis, diem dicunt, qua die ad ripam Rhodāni omnes conveniant: is dies erat a. d. v. Kal. Aprīlis, L. Pisone, A. Gabinino consulibus.

Give the positive and comparative of extremum; of proximum. In what case and construction is Allobrogibus?

Reduce the following dates to the corresponding dates of our calendar: ante diem tertium Nonas Januarias, ante diem quintum Idus Mart, ante diem septimum Kalendas Novembres.

IV. Translate:-

Flumen est Arar, quod per fines Aeduōrum et Sequanōrum in Rhodānum influit incredibili lenitāte, ita ut ocūlis, in utram partem fluat, judicāri non possit. Id Helvetii, ratībus ac lintribus junctis, transībant. Ubi per exploratōres Caesar certior factus est, tres jam partes copiārum Helvetios id flumen traduxisse, quartam vero partem citra flumen Arārim reliquam esse, de tertia vigilia cum legionībus tribus e castris profectus, ad eam partem pervēnit, quae nondum flumen transiérat. Eos impedītos et inopinantes aggressus, magnam eorum partem concīdit: reliqui sese fugae mandārunt atque in proximās silvas abdidērunt. Is pagus appellabātur Tīgurīnus, nam omuis cīvītas Helvetia in quattuor pagos divīsa est. Hic pagus unus, quum domo exisset, patrum nostrōrum memoria L. Cassium consūlem interfecērat et ejus exercītum sub jugum misērat.

Parse fluot. Govern flumen. Give the full form of mandarunt, and explain the contraction. Give the division of the night into watches or vigiliae.

V Translate :-

His Caesar ita respondit: eo sibi minus dubitationis dari, quod eas res, quas legăti Helvetii commemorassent, memoria teneret; atque eo gravius ferre, quo minus merito populi Romani accidissent: qui si alicujus injuriae sibi conscius fuisset, non fuisse difficile cavere; sed eo deceptum, quod neque commissum a se intelligeret, quare timeret, neque sine caussa timendum putăret. Quod si veteris contumeliae oblivisci vellet, num etiam recentium injuriarum, quod, eo invito, iter per provinciam per vim tentassent, quod Aeduos, quod Ambarros, quod Allobrógas vexassent, memoriam deponère posse?

VI. Translate into Latin:
The hands should labor.
The law is established.
I have been disturbed.

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Examination Papers.

CICERO

December, 1876.

CICERO.

- 1. What was the Lex Manilia, when, where and by whom, was it introduced, by whom opposed and by whom supported?
- 2. How old was Cicero at that time, and what office did he hold?
- 3. Sketch briefly the chief points of his exordium to the oration for the Manilian Law.

Translate :--

- 4. Atque ut inde oratio mea proficiscatur, unde haec omnis causa ducitur, bellum grave et pericu losum vestris vectigalibus ac sociis a duobus potentissimis regibus infertur, Mithridate et Tigrane; quorum alter relictus, alter lacessitus, occasionem sibi ad occupandam Asiam oblatam esse arbitrantur. Equitibus Romanis, honestissimis viris, afferuntur ex Asia quotidie literae, quorum magnae res aguntur, in vestris vectigalibus exercendis occupatae; qui, ad me, pro necessitudine, quae mihi est cum illo ordine, causam rei publicae periculaque rerum suarum detulerunt.
- 5. Utinam, Quirites, virorum fortium atque innocentium copiam tantam haberetis, ut haec vobis deliberatio difficilis esset, quemnam potissimum tantis rebus ac tanto bello praeficiendum putaretis! Nunc vero, quum sit unus Cu. Pompeius, qui non modo eorum hominum, qui nunc sunt, gloriam, sed etiam antiquitatis memoriam virtute superarit, quae res est, quae cujusquam animum in hac causa dubium facere possit? Ego enim sic existimo, in summo imperatore quatuor has res inesse oportere, scientiam rei militaris. virtutem, auctoritatem, felicitatem.
- 6. Quid igitur ait Hortensius? Si uni omnia tribuenda sint, dignissimum esse Pompeium; sed ad unum tamen omnia deferri non oportere. Obsolevit jam ista oratio, re multo magis quam verbis refutata. Nam tu idem, Q. Hortensi, multa pro tua summa copia ac singulari facultate di-

cendi et in senatu contra virum fortem A. Gabinium graviter ornateque dixisti, quum is de uno imperatore contra praedones constituendo legem promulgasset, et ex hoc ipso loco permulta item contra eam legem verba fecisti.

- ? Si quid est in me ingenii, judices, quod sentio quam sit exiguum, aut si qua exercitatio dicendi, in qua me non infitior mediocriter esse versatum: aut si hujusce rei ratio aliqua ab optimarum artium studiis ac disciplina profecta, a qua ego nullum confiteor aetatis meae tempus abhorruisse; earum rerum omnium vel in primis hic A. Licinius fructum a me repetere prope suo jure debet. Nam quoad longissime potest mens mea respicere spatium praeteriti temporis et pueritiae memoriam recordari ultimam, inde usque repetens hunc video mihi principem et ad suscipiendam et ad ingrediendam rationem horum studiorum exstitisse.
- 8. a. There is no nation that we need fear. b. For the most part, men willingly believe that which they desire. c. For when, on account of the postponement of the comitia, I was thrice announced first practor, by all the centuries, I readily percieved, Quirites, both what you decided concerning myself, and what you marked out for others. d. I trust such are your prudence and temperance, that you are in good health. c. (He) who wishes the kernel to be extracted from the nut. cracks the nut.
 - 9. a. What is the subject of arbitrantur, in 4?
 - b. What do the first two words in four connect?
- c. Give the rules for the mood of haberetis and putaretis in 5.
- d. On what does esse, in dignissimum esse Pompeium, in 6, depend?
 - e. What does the first word in 7 connect?
- 10. Derive conspicuous, prohibitory, transmission, mandamus and factotum, and give the etymon, or real meaning of each. As the English see-through-ative-ness would not be tolerated, and the idea for which it stands must have expression, what Latin word has been brought into use to supply the need?

ROCHESTER

FREE ACADEMY

Examination Papers.

VIRGIL

December, 1876.

VIRGIL

- 1.-a. When and where was Virgil born?
 - b. In whose consulship?
 - c. How came he to lose his hereditary estate?
 - d. Through whom did he become acquainted with Augustus?
 - e. When and where did he die, and why did he happen to die at that place?
- 2.- a. How long was he in writing this poem?
 - b. Which is the first book in the order of time?
 - c. What is gained by the change of the chronological order in narrating the events?
 - d. What is an epic poem?
 - e. Who is the hero of this poem?
- 5.—a. What are the feet in a Latin hexameter, how are they arranged, and which of them have a fixed place in the verse?
 - b. Since the kinds of feet in a hexameter are so few, how is the endless variety of this verse secured?
 - c. Give the derivation of dactyl, of spondee.
 - d. What is the greatest number of syllables possible in a hexameter?—the least number?
 - e. Which of these arrangements would give the greater animation?

4.—Scan, mark, by two perpendicular parallel lines, the cæsural pause, and point out an ecthlipsis and a synaloepha in the following hexameter:

Nec dum etiam causae irarum saevique dolores.

Translate:

- 5.—Urbs antiqua fuit, Tyrii tenuere coloni,
 Karthago, Italiam contra Tiberinaque longe
 Ostia, dives opum studiisque asperrima belli;
 Quam Juno fertur terris magis omnibus unam
 Posthabita coluisse Samo; hic illius arma,
 Hic currus fuit; hoc regnum dea gentibus esse,
 Si qua fata sinant, jam tum tenditque fovetque.
 Progeniem sed enim Trojano a sanguine duci
 Audierat, Tyrias olim quae verteret arces;
 Hinc populum late regem belloque superbum
 Venturum exscidio Libvae: sic volvere Parcas.
- 6.—Sic Venus; et Veneris contra sic filius orsus:
 Nulla tuarum audita mihi neque visa sororum,
 O—quam te memorem, virgo? namque haud tibi vultus
 Mortalis, nee vox hominem sonat: o, dea certe;
 An Phoebi soror? an Nympharum sanguinis una?
 Sis felix, nostrumque leves, quaecumque, laborem,
 Et quo sub coelo tandem, quibus orbis in oris
 Jactemur, doceas: ignari hominumque locorumque
 Erramus, vento hue vastis et fluctibus acti:
 Multa tibi ante aras nostra cadet hostia dextra.
- 7.—Namque ut conspectu in medio turbatus, inermis,
 Constitit atque oculis Phrygia agmina circumspexit:
 Hen, quae nunc tellus, inquit, quae me aequora possunt
 Accipere? aut quid jam misero mihi denique restat,
 Cui neque apud Danaos usquam locus, et super ipsi
 Dardanidae infensi poenas cum sanguine poscunt?
 Quo gemitu conversi animi, compressus et omnis
 Impetus. Hortamur fari; quo sauguine cretus,
 Quidve ferat, memoret, quae sit fiducia capto.
 [Ille haec, deposita tandem formidine, fatur:]

- 8.—Govern opum, in 5; give the rule for the mood of juctemur, in 6; give the parts of constitit, and circumspexit, and the first pers. sing. of inquit.
- 9.—Derive and give the true meaning of an English word from each Latin word in the following hexameter:

Urbs, antiqua fuit Tyrii tenuere coloni.

10.—What Latin derivatives do English speaking people use, instead of the awkward English compounds, what-sortness, how-much-ness, hundred-year-al, ten-year-al-ly, related-by-blood-ness, (a) go-willingly-er? How then does the study of Latin become the great labor-saving process for all who have to learn the English language in the shortest possible time and in the most thoroughly practical manner?

ROCHESTER FREE ACADEMY.
EXAMINATION PAPERS.
Perspective Drawing.
APRIL, 1876.

PERSPECTIVE DRAWING.

- Define perspective drawing.
- 2. What is the field of vision?
- 3-9. Define the following terms used in perspective drawing: Horizontal Line. Station Point. Center of Vision. Line of Direction. Picture-Plane. Ground-Plane and Picture Line.
 - 10. What are vanishing points?
 - 11. Of what use are measuring or distance points?
- 12. What relation do all lines bear to one another that vanish in the same point?
- 13. What kind of lines have their vanishing point in the center of vision?
 - 14. What is parallel perspective?
 - 15. What is angular perspective?

PROBLEMS.

The scale to be used in the drawings is one foot to the half inch.

- 1. Represent a horizontal line twelve feet in length.
- 2. Place the center of vision in the center of this line.
- 3. Place the station point 6 feet from the center of vision.
- 4. Draw the line of direction.
- 5. Draw the picture line 3 feet below the horizontal line.
- 6. Locate the distance points for parallel perspective.

- 7. On the picture plane represent the pespective position of a dot, situated on the ground plane, 2 feet to the right of the line of direction and 2 feet back of the picture plane.
- 8. On the picture plane represent the perspective position of a line 3 feet in length, situated on the ground plane and 2 feet to the left of the line of direction. This line touches the picture plane and is perpendicular to it.
- 9. Reconstruct the preliminary lines as above, and represent in parallel perspective a square, measuring 2 feet on each side, situated on the ground plane, 2 feet to the left of the line of direction, and against the picture plane.
 - 10. On this square construct a cube as seen in perspective.
- 11. Two feet to the right of the line of direction draw a similar square, and on this draw a pyramid 6 feet in height.
- 12. Draw a horizontal line 14 feet in length; locate the center of vision 6 feet from the right end of the horizontal line, and the station point 6 feet from this point; draw the line of direction, and the picture line 2 feet below the horizontal line.
- 13. Find the vanishing point of a line, situated on the ground plane, that forms an angle of 50° with the picture plane to the right of the line of direction. Also find the measuring point of this vanishing point.
- 14. Find the vanishing point of a line, situated on the ground plane, that forms an angle of 40° with the picture plane to the left of the line of direction.
- 15. On the picture plane represent a square whose dimensions are 2 feet on each side; situated on the ground plane, one corner resting against the picture plane 2½ feet to the right of the line of direction; the side of the square to the right forming an angle of 50°, and the side to the left an angle of 40° with the picture plane.
 - 16. On this square construct a cube.
- 17. On the opposite side of the line of direction at an equal distance, draw a similar square.
 - 18. On this square represent a pyramid 5 feet high.

ROCHESTER FREE ACADEMY.

EXAMINATION PAPERS.

Physiology,

APRIL, 1876.

Physiology

- 1. Describe the structure, size and appearance of a nervous filament?
 - 2. Give the situation and form of the spinal cord?
 - 2. How do the spinal differ from the cranial nerves?
 - 4. What is the general function of the nerves?
- 5. What two kinds of nervous filaments are there in the nervous system? State the functions of each.
 - 6. What portion of the spinal cord is a nerve center?
- 7. Describe the union of the spinal nerves with the spinal cord?
- 8. Why is fracture of the spine liable to produce paraplegia?
- 9. How are the two opposite sides of the body and brain connected with each other?
- 10. Where must be the seat of disease or injury of the nervous system to produce paralysis of one side of the body?
 - 11. How do the trifacial differ from the facial nerves?
- 12. How is the food in swallowing prevented from entering the back part of the nostrils?
 - 13. How is the pitch of the voice changed?
- 14-16. Name and describe the three principal divisions of the brain?
- 17. What portion of the brain is the organ of the mind? How do you know this?
- 18. What are the simplest and most important of the mental faculties.

- 19. How does a nervous impression differ from a conscious sensation?
 - 20. What comprises the cerebro-spinal nervous system?
- 21. What is the principal function of the sympathetic system of nerves?
 - 22. What is the peculiarity of a nerve of special sense?
- 23-29. Describe the following parts of the eye: sclerotic coat, cornea, choroid coat, iris, pupil, crystalline lens and retina.
- 30. Why cannot all objects situated at different distances from the eye be seen with the same degree of distinctness at the same time?
- 31. Why is vision with the two eyes better than with one only?
- 32. What is the use of the act of winking, and how would the eye suffer if it were not performed?
 - 33. Why does this act usually pass unnoticed?
 - 34. What is the best kind of light for the eyes?
- 35. Of what use is the membrane of the tympanum of the ear?
- 36. How are sound vibrations transmitted from the external to the internal ear?
 - 37. Describe the special nerves of the sense of smell?
 - 38. What is the condition of the skeleton at birth?
- 39. What are the fontanelles or soft spots in the heads of infants?
 - 40. What is the difference between an infant and a child?

ROCHESTER FREE ACADEMY.

EXAMINATION PAPERS.

ALGEBRA.

APRIL, 1876.

ALGEBRA

- 1. In what does the solution of a problem consist?
- 2. From what two causes may a negative result arise? Solve the following problems:—
- 3. The sum of two numbers is 5760, and their difference is equal to one third of the greater. Find the numbers.
- 4. A crew which can row at the rate of 12 miles an hour in still water, finds that it takes 7 hours to come up a river a certain distance, and 5 hours to go down again. At what rate does the river flow?
- 5. A cask, A, contains 12 gallons of wine and 18 gallons of water; another cask, B, contains 9 gallons of wine and 3 gallons of water; how many gallons must be drawn from each cask, so as to produce, by their mixture, 7 gallons of wine and 7 gallons of water?

Find the value of the unknown quantities in each of the following sets of equations:—

6.
$$\begin{cases} 7n - 13z = 87 \\ 10y - 3x = 11 \\ 3n + 14x = 57 \\ 2x - 11z = 50 \end{cases}$$
7.
$$\begin{cases} x + y + z = 0 \\ (b + c)x + (a + c)y + (a + b)z = 0 \\ bcx + acy + abz = 1 \end{cases}$$

Solve the following problems:-

8. A can dig a ditch in one-half the time that B can; B can dig it in two-thirds of the time that C can; all together they can dig it in 6 days. Required the time in which each alone can dig the ditch.

9. If there were no accidents, it would take half as long to travel the distance from A to B by railroad as by coach; but three hours being allowed for accidental stoppages by the former, the coach will travel all the distance but fifteen miles in the same time; if the distance were two-thirds as great as it is, and the same time allowed for railway stoppages, the coach would take exactly the same time. Find the distance from A to B.

10. A certain number consists of two places of figures, units and tens; the number is equal to four times the sum of its digits, and if 27 be added to the number, the order of the digits will be inverted. What is the number?

- 11. What does the symbol ∞ denote?
- 12. Interpret the forms $\frac{0}{B}$ and $\frac{A}{\infty}$
- 13. What is a Vanishing Fraction?
- 14. How is its true value found?
- 15. Subtract 2x+4y>30 from 3x+2y=31.
- 16. Substitute x>13 in the equation 4x+5y=68.
- 17. What sign must be given to even powers of negative quantities? To odd roots of any negative quantities?
 - 18. What root of a negative quantity cannot be obtained?
 - 19. Find $\left[(-ab^4c^4) \ (-a^2b^5c) \right]_c^s$ 20. Find $\sqrt[4]{a^5b^{13}c^{-4}}$
 - 31. Find the product of $a^{\frac{1}{2}}$, $a^{\frac{1}{8}}$, $a^{-\frac{1}{4}}$ and $a^{-\frac{1}{8}}$.
- 22. Find m^{th} power of $-a^{2}b^{3}c$ when m is an even positive integer.
 - 23. Find square root of $9a^2 + 12ab + 4b^2 + 6ac + 4bc + c^3$.
- 24. Show that the mn^{th} root of a quantity is the same as the m^{th} root of the n^{th} root of that quantity.
 - 25. Show that $a^{\frac{1}{n}} \times b^{\frac{1}{n}} = (ab)^{\frac{1}{n}}$

ROCHESTER FREE ACADEMY.

EXAMINATION PAPERS.

GEOMETRY

APRIL, 1876.

GEOMETRY

I-VI BOOKS.

APRIL, 1876.

- 1. Name and define each of the Geometrical magnitudes.
- 2. How many acute angles can a triangle have? How many right angles? Obtuse angles?

To what is the sum of the angles of a triangle equal? Of a parallelogram?

3: What is the measure of a triangle? Of a parallelogram?

When are triangles equivalent? When are parallelograms equivalent?

- 4. Demonstrate the following propositions:
- (a) The square described on the difference of two lines is equivalent to the sum of the squares described on the two lines diminished by twice the rectangle contained by these lines.
- (b) The two diagonals of any parallelogram bisect each other; and the sum of their squares is equivalent to the sum of the squares of the four sides of the parallelogram.
- 5. Define the following terms: proportion, ratio, extremes, means, antecedent, consequent.
- 6. What relation have perimeters of similar polygons to one another? What relation have their areas?
 - 7. Demonstrate the following proposition:

Similar triangles are to one another as the squares of their homologous sides.

- 8. What is an arc of a circle? A chord? A segment? A secant?
- 9. What is the measure of an angle at the center of a circle? At the circumference?
- What is the measure of an angle formed by a tangent and a chord? Of an angle formed by a secant and a tangent?
 - 10. Demonstrate the following propositions:
- (a) The area of a circle is equal to the product of its radius by one-half of its circumference.
- (b) Given the chord of an arc to find the chord of one-half that arc, the radius of the circle being unity.

Solve the following problems:

- 11. (a) The perpendicular distance between two parallel lines is 10; what angles must a line of 20 make with these parallels to extend exactly from the one to the other?
- (b) The diameter of a circle is 4; what is the area of the inscribed equilateral triangle?
- 12. Define a plane. a diedral angle, a triedral angle, a polyedral angle.
 - 13. What will determine the position of a plane?
 - 14. When are magnitudes symmetrically equal?
 - 15. What measures the inclination of a line to a plane?
 - 16. Demonstrate the following proposition:

Any one of the three plane angles bounding a triedral angle, is less than the sum of the other two.

ROCHESTER FREE ACADEMY.

EXAMINATION PAPERS.

GEOMETRY .-- B.

APRIL, 1876.

GEOMETRY --- B.

1. Define parallel lines.

Prove the following theorems:

- 2. If two planes are perpendicular to the same straight line, they are parallel to each other. What is the converse proposition?
- 3. Oblique lines drawn from a point to a plane at equal distances from the perpendicular are equal; and of two oblique lines unequally distant from the perpendicular, the more remote is the greater.
- 4. Any one of the three plane angles bounding a triedral angle, is less than the sum of the other two.

The sum of the three angles taken together cannot exceed a certain quantity: What is it?

- 5. What is the chord of an arc?
- 6. To what is the area of any circle equal?

Prove the truth of your answer.

- 7. When the radius is unity, how is the value of the area of a circle determined? State in a general way.
- 8. State the proportional relation which holds between circles.
- 9. Name any solids to which the general term polyedron is applied.

What is the unit of measurement of solids?

10. Define a cone—a sphere—a cylinder. What is the convex surface of a prism?

- 11. Give the geometrical meaning and the approximate value of π ; also, the formulas for (1), the circumference of a circle (2), the surface of a sphere (3), the volume of a sphere.
- 12. Define a great and a small circle. State any truths respecting them.
 - 13. Define a spherical sector; a segment.
- 14. The surface of a sphere is 68 sq. ft.; what is its diameter?

If the diameter of the single base of a spherical segment be 16 in., and the altitude 4 in., what is its solidity?

15. The longer of two parallel sides of a trapezoid is 12, the shorter 8, and their distance asunder 5, what is the area of the trapezoid?

Two chords on opposite sides of the center of a circle are parallel, and one of them has a length of 16 and the other of 12 ft., the distance between them being 14 ft. What is the diameter of the circle?

ROCHESTER FREE ACADEMY. Examination Papers. Political Economy. APRIL, 1876.

Political Economy

April, 1876.

- 1. Give a definition of Political Economy.
- 2. What two senses of value are there, and which do we consider? What gives value to objects?
- 3. What has led to division of labor? what are the advantages and disadvantages of such division?
 - 4. Define the terms valve and price.
- 5. Show that a general rise or fall in the case of values is impossible, but possible in the case of prices.
- 6. Explain the origin of the use of money, and state the advantages of its use.
- 7. What substances are generally used as money, and why?
- 8. Name and explain each of the substitutes for money.
- 9. Give an account of the origin and growth of banks.
- 10. Define capital, and explain the difference between fixed and circulating capital.
- 11. What causes determine the wages of labor? What sense must be attached to the term labor?
- 12. Explain the nature of interest. Upon what does the rate of interest depend.?

- 13. Upon what does the rent and value of land depend?
 - 14. Define the terms demand and supply.
- 15. State and explain the two laws of demand and supply. Under what circumstances will the last of these be inoperative?
- 16. What causes affect the amount of money needed in any country?
 - 17. Define tariff, and explain the two kinds.
- 18. What are the arguments against a protective tariff?
- 19. Define the term tax, and explain the nature of a direct and indirect tax.
- 20. State the four rules of taxation laid down by Adam Smith.

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EXAMINATION PAPERS.

READING AND COMPOSITION.

APRIL, 1876.

READING AND COMPOSITION.

I. Indicate the pronunciation of the following words: Heaven, forgiven, softly, office, often, perfect, wholly, truths.

Contrasted words should be read how? The pause of suspension is required where? Simple commencing series how read? Simple concluding series?

II. What is the difference between an Essay and a Treatise? a Lecture and a Sermon? an Address and an Oration? a Parable and an Allegory?

Define Poetry, Rhyme, Versification.

What is the difference between Prose and Blank Verse? a Hymn and a Psalm? Tragedy and Comedy? a Scene and an Act?

- III. Indicate, and refer to their appropriate heads, the offences against good usage which are embodied in the following sentences:
 - We can't go in without we pay.
 - 2. The old, vulgar translation of the Psalms.
- 3. Let us look for a moment at the past history of this strange people.
 - 4. There is, in our midst, great corruption.
- 5. This event transpired last week, but only became known yesterday.
- The young know not how soon the brittle thread of life may be cut asunder.
 - 7. "O! Somewhere, meek, unconscious dove,

That sittest, 'ranging golden hair."

IV. "The Deserted Village."

Give an analysis of the poem in the following order:

- Poem. \ \ \begin{cases} \text{When written-length-popularity-ref-} \ \ \text{erences to celebrated writers.} \end{cases}\$
- 2. The General Idea.
- 3. The Topics.
- 4. Text.

 Metre—Figures of Rhetoric—Examples of beautiful rhythm—Parallel references to the Bible.
- 5. Quotations.
- 6. Criticisms.

V. "Beside yon straggling fence that skirts the way, With blossomed furze unprofitably gay, There, in his noisy mansion, skilled to rule, The village master taught his little school." line 198.

What general description in these lines from 193-216? Was the schoolmaster a real or an imaginary character? What was his full name? What was his favorite weakness? What effect did he have on Goldsmith's life? Give subject, verbs and modifiers in the four lines. Explain the word straggling. What is blossomed furze? Meaning of unprofitably gay? Is furze really unprofitable? What use is made of it by the English cottagers? Force of there?

Original meaning of truant? how used in school-boy idiom? Does Shakespeare ever use the word in a school-boy sense? What American author has given a description of a schoolmaster? what English author? Are these descriptions caricatures?

VI. "Near yonder copse, where once the garden smiled,
And still where many a garden-flower grows wild,
There, where a few torn shrubs the place disclose;
The village preacher's modest mansion rose.
A man he was to all the country dear,
And passing rich with forty pounds a year;
Remote from towns he ran his godly race,
Nor e'er had changed, nor wished to change his place.
Unpractis'd he to fawn, or seek for power
By doctrines fashioned to the varying hour."

What general description do we have in these lines? Judging from the author's life would you think him capable of giving so finished a description of a clergyman?

What facts of his early life will give an explanation? What persons did Goldsmith have in mind?

What does yonder mean? Meaning of copse smiled? Explain figure of rhetoric. Why is there used in the third line? What is the subject of the first sentence? Verb? Show how the subject and verb are modified.

Why village preacher? Why speak of one preacher? Would this remark apply to our United States villages? Give synonyms of the word preacher, and explain the use of each. When the English clergy is referred to in the older English authors what sect is meant?

From what are the following words derived: Village, mansion, remote, disclose?

What does passing mean? Give synonym. Explain the figure in the seventh line. Give a similar figure from Hebrews. What is the seuse of the figure as used by Paul? Explain the word fawn.

Mention all the Saxon words you can in these ten lines all the Latin.

VII. Give a brief sketch of the life and writings of Goldsmith:

1. Life. Personal Career.
Literary Career
Character.
Anecdotes.

Poetry.
Plays.
Prose.
Fiction.

- Sources of information. Famous contemporaries.
 VIII. Point out the figures of rhetoric that occur in the following extracts:
- "Tall men, like tall houses, are usually ill-furnished in the upper story."—BACON.
 - "Flesh and blood have not revealed it unto thee."—BIBLE.

 "And like a flower that cannot all unfold,
 So drenched it is with tempest."—TENNYSON.
 - "Sky lowered; and muttering thunder, some sad drops Wept at completing of the mortal sin."—MILTON.
 - "Drops the light drop of the suspended oar, And chirps the grasshopper one good-night carol more."
 - "The wide ether resounded, and the affrighted river rolled backward."—VIRGIL.
 - "What has the gray-haired prisoner done?

 Has murder stained his hands with gore?

 Not so. His crime's a fouler one—

 God made the old man poor."—WHITTIER.

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EXAMINATION PAPERS.

Composition and Reading.

APRIL, 1876.

JEFFERSON.

1743-1826.

THOMAS JEFFERSON was born in Virginia in 1748, and died in 1826. He will forever live in the memory of Americans as the author of The Declaration of Independence. He was President of the United States, 1891-9; was Governor of Virginia, Member of Congress, Minister to France, Secretary of State, etc. He is best known in literature by his Notes on Virginia, privately printed in Paris, in 1782; but none of his writings afford a clearer idea of his style than does this extract from his writings afford a clearer idea of his style than does this extract from his writings afford a clearer idea of his style than does this extract from his penned the declaration of Independence. To have been the instrument of expressing in one brief, declaive act, the consecrated will and resolution of a whole family of States; of unfolding, in one all-important manifesto, the causes, the motives and the justification of this great movement in human affairs; to have been permitted to give the impress and peculiarity of his mind to a charter of public rights, destined to an importance in the estimation of men equal to anything human ever borne on parchment or expressed in the visible signs of thought:—this is the glory of Thomas Jefferson."

CHARACTER OF WASHINGTON.

His mind was great and powerful, without being of the very first order; his penetration strong, though not so acute as that of Newton, * Bacon, † or Locke; ‡ and as far as he saw, no judgment was ever sounder. It was slow in operation, being little aided by invention or imagination, but sure in conclusion. Hence the common remark of his officers, of the advantage he derived from councils of war, where, hearing all suggestions, he selected whatever was best; and certainly no general ever planned his battles more judiciously. But if deranged during the course of the action, if any member of his plan was dislocated by sudden circumstances, he was slow in a readjustment. The consequence was, that he often failed in the field, and rarely against an enemy in station, as at Boston and York. He was incapable of fear, meeting

personal dangers with the calmest unconcern. Perhaps the strongest feature in his character was prudence, never acting until every circumstance, every consideration, was maturely weighed; refraining if he saw a doubt, but when once decided, going through with his purpose, whatever obstacles opposed. His integrity was most pure, his justice the most inflexible I have ever known.

- * NEWTON. An illustrious English philosopher and mathematician, born 1642. (See Brewster's Memoirs of Sir Isaac Newton.)
- † BACON. One of the greatest lawyers and philosophers that ever lived, born 1561. (See Campbell's Lives of the Lord Chancellors.)
- ‡ LOCKE. The author of the celebrated Essay on the Human Understanding, born in England, 1632.
- 1. Write, in full, the line consisting wholly of dates separated by a dash, as you have been taught to read all similar expressions.
- 2. Write, in full, and in order, all dates in this biographical notice, as you have been uniformly required to read dates during the year.
- 3. Write, in full, and in order, all abbreviations employed in it.
 - 4. What is the English abbreviation for etc.?
- 5. Write the first three sentences of "Character of Washington," introducing the foot-notes in the proper places, and in the manner required of you, in reading, during the year.
- N. B.—1. Words italicised in print, should, in manuscript, be underlined.
- Wrong spelling of words found on the question-paper, will evince carelessness, and be to your discredit.
 - 3. All evidence of carefulness will be to your credit.

ROCHESTER FREE ACADEMY.

EXAMINATION PAPERS.

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APRIL, 1876.

RHETORIC.

- 1. What two great advantages may result from the study of Rhetoric?
- 2. Has the study of Rhetoric a tendency to enforce morality?
- 3. How have rules of Rhetoric and Criticism been formed?
 - 4. Define Taste.
- 5. Is it safe to pronounce to be beautiful that which most persons of culture admire?
- 6. May an object which is merely beautiful, gay or elegant, be so described by the aid of Rhetoric, as to appear sublime?
- 7. A writer has, we will suppose, an unworthy conception of a truly sublime object. *Name* the fault which will appear in his writing.
- 8. Another writer, wishing to produce a sublime passage, attempts to raise an ordinary object above its level. Name the resulting fault.
 - 9. What is style in writing?
 - 10. Name your author's classification of styles.
- 11. Which of these styles differ mainly in the amount of ornament employed?
- 12. Which of them differ principally in the structure of their respective sentences?
- 13. Which of them differ in the few or many words employed by the writer to express his thoughts?

- 14. Which of them differ in the degree of impression made on reader or hearer?
 - 15. Name the Essential Properties of style.
- 16. What essential property of style is violated when things having no connection are crowded into one sentence?
 - 17. What one, in the needless use of technical terms?
 - 18. What one, in splitting of particles?
- 19. What is gained by retaining the longest members of a sentence or passage, and the fullest and most sonorous words, for the conclusion?
- 20. What essential property of style is violated by the writer who sprinkles his pages with French and Italian phrases?

ROCHESTER FREE ACADEMY.					
EXAMINATION PAPERS.					
NATURAL PHILOSOPHY.					
APRIL, 1876.					

Natural Philosophy.

- 1. How is the sensation of sound produced?
- 2. What is an echo?
- 3. When is one musical tone the octave of another?
- 4. Explain in what way the air surrounding the earth is heated by the sun.
- 5. What effect does heat produce upon the volume of all bodies?
- 6. Which class of bodies expands the most and which class the least by the application of heat?
 - 7. What peculiarities of expansion does water exhibit?
 - 8. How is the thermometer of Fahrenheit graded?
- 9. In order that one liquid may be separated from another by distillation, what is necessary with regard to their boiling points?
- 10. How do you explain the fact that the water from melting ice has the same temperature as the ice (32° F.)?
- 11. Why is it worse to be burned with steam at 212° F. than with water at the same temperature?
- 12. What is the principal difference between the high and the low pressure steam engine?
 - 13. Why should a ventilating flue be heated?
- 14. Why is dew not apt to be formed during a cloudy night?
- 15. Why do the clouds, which are heavier than the air, float?
 - 16. What is the principal cause of winds?

17. Explain why a pond of water appears less deep than it really is, when we look into it obliquely.

18. Draw a diagram illustrating the effect of a double convex lens on parallel rays of light passing through it.

19. Draw a diagram illustrating the effect of a double concave lens on parallel rays of light passing through it.

20. Define the refractive power of a prism.

21. Define the dispersive power of a prism.

22. Why does not a red object which is illuminated by the white sunlight appear white?

23. Show that the eye is a camera obscura.

- 24. How does the compound differ from the simple microscope?
- 25. How does the refracting differ from the reflecting telescope?
- 26. State the general law of electrical attraction and repulsion.
- 27-28. When is a body said to be positively, and when negatively, electrified?
 - 29. What is electrical induction?
- 30-32. Under what circumstances will the lightning pass from a cloud to the earth; from the earth to a cloud, and from one cloud to another?
- 33. How may the heating effects of galvanic electricity be illustrated?
- 34. What is the brightest artificial light, and how may it be produced?
 - 35. What is thermo electricity?
 - 36. If we break an artificial magnet what occurs?
- 37. How may a steel bar be rendered magnetic by means of an artificial magnet?
- 38. Why does not the magnetic needle point directly north and south?
- 39. What effect has a current of electricity upon a magnetic needle near which it may be passing?
- 40. What is an electro-magnet, and of what important use is it?

ROCHESTER FREE ACADEMY.

EXAMINATION PAPERS.

ANABASIS.

APRIL, 1876.

ANABASIS

1. Translate-

- 'Ο γὰρ Τισσαφέρνης ἐν τῆ πρώτη συνόδιμ οὐχ ἔφυγεν,
 ἀλλὰ διήλασε παρὰ τὸν ποταμὸν χατὰ τοὺς "Ελληνας πελταστάς · διελαύνων δὲ χατέχανε μὲν οὐδένα, διαστάντες δὲ
 οξ "Ελληνες ἔπαιον χαὶ ἡχόντιζον αὐτούς · `Επισθένης δὲ
 Άμφιπολίτης ἡρχε τῶν πελταστῶν, χαὶ ἐλέγετο φρόνιμος
 γενέσθαι. 'Ο δ' οὖν Τισσαφέρνης ὡς μεῖον ἔχων ἀπηλλάγη,
 πάλιν μὲν οὐχ ἀναστρέφει, εἰς δὲ τὸ στρατόπεδον ἀφιχόμενος
 τὸ τῶν Ἑλλήνων, ἐχεῖ συντυγχάνει βασιλεῖ, χαὶ ὁμοῦ δὴ πάλιν
 συνταξάμενοι ἐπορεύοντο.
- 2.— Έν τούτφ Κλέαρχος ήχε, χαὶ ἡρώτησεν, εἰ ἦδη ἀποχεχριμένοι εἶεν. Φαλῖνὸς δὲ ὑπολαβὼν εἶπεν "Όὐτοι μὲν, ὡ Κλέαρχε, ἄλλος ἄλλα λέγει οὐ δ' ἡμῖν εἰπὲ, τὶ λέγει." 'Ο δ' εἶπεν "'Εγώ σε, ὡ Φαλῖνε, ἄσμενος ἑώραχα, οἶμαι δὲ χαὶ οἱ ἄλλοι πάντες οὐ τε γὰρ "Ελλην εἶ, χαὶ ἡμεῖς, τοσοῦτοι ὄντες δσους σὺ ὁρᾶς ἐν τοιούτοις δὲ ὄντες πράγμασι συμβουλευόμεθά σοι, τὶ χρὴ ποιεῖν περὶ ὧν λέγεις.
- 3.—Προϊούσης μέντοι τῆς νυκτὸς ταύτης, καὶ τοῖς ελλησι φόβος ἐμπίπτει, καὶ θόρυβος καὶ δοῦπος ἡν, οἴον εἰκὸς φόβου ἐμπεσόντος γίγνεσθαι. Κλέαρχος δὲ Τολμίδην Ἡλεῖον, δν ἐτύγχανεν ἔχων παμ' ἑαυτῷ, κήρυκα ἄριστον τῶν τότε, τοῦτον ἀνειπεῖν ἐκέλευσε, σιγήν κατακημύξαντα ὅτι προαγορεύουσιν οἱ ἄρχοντες, δς ἀν τὸν ἀφέντα τὸν ὄνον εἰς τὰ ὅπλα μηνύση, ὅτι λήψεται μισθὸν τάλαντον ἀργυρίου."

- 4.— Ταῦτα εἰπὼν ἔδοξε τῷ Κλεάρχῳ ἀληθῆ λέγειν καὶ εἰπεν "Οὐκοῦν," ἔφη, "οἰτινες, τοιούτων ἡμῖν εἰς φιλίαν ὑπαρχόντων, πειρῶνται διαβάλλοντες ποσῆσαι πολεμίους ἡμᾶς, ἄξιοί εἰσι τὰ ἔσχατα παθεῖν ;" "Καὶ ἐγὼ μέν γε," ἔφη ὁ Τισσαφέρνης, " εὶ βούλεσθέ μοι, οῖ τε στρατηγοί καὶ οί λογαγοί, ἐλθεῖν, ἐν τῷ ἐμφανεῖ λέξω τοὺς πρὸς ἐμὲ λέγοντας, ὡς σὸ ἐμοὶ ἐπιβουλεύεις καὶ τῆ σὺν ἐμοὶ στρατιῷ."
- 5.—Certain of the soldiers of Meno, as they see Clearchus riding back to his own tent, let fly with their axes. We tie up a cross dog through the day, but let him loose at night. But if we are wise, we shall treat this man in a contrary manner.
- 6.—The women stood a long time and wept. Those of the soldiers who stood around drove him away, and said that the sheep were public *property*. They answered, that they thought they should find the robbers all dead.
- 7.—The Macronian leaps both high and nimbly, and flourishes his sword. After this, the Thracians went out, singing the Sitalcas. But they had received no harm. They bound the robber; and having fastened him beside the horses, drove him on with both hands tied behind.
- 8.—Analze ἀπηλλάγη, συνταξάμενοι, ἀποχεχριμένοι, ἐωὑραχα, χαταχηρύξαντα. Give the stem of πράγμασι, and show how its theme is obtained from the stem.
- 9.—What is the last verh in the first sentence in No. 2, and where is it made? Give rule for the mood.
- 10.—Derive protozoa, allopathy, panoply, paradigm, and philharmonic, and derive an English word, and give its etymon, from each of the following: $\pi \alpha \rho \delta$, $\pi \sigma \tau \alpha \mu \delta \varsigma$, $\delta \lambda \delta \varsigma$, $\phi \delta \beta \sigma \varsigma$, $\pi \alpha \theta \epsilon \tilde{\iota} \nu$.

ROCHESTER FREE ACADEMY.

EXAMINATION PAPERS.

CICERO.

APRIL, 1876.

CICERO

- 1. Give the origin, cause and circumstances of the Oratio pro Archia Poeta.
 - 2. Same in regard to the Orationes in Catilinam?

Translate:--

- 3. Ac ne quis a nobis hoc ita dici forte miretur, quod alia quaedam in hoc facultas sit ingenii neque hace dicendi ratio aut disciplina, ne nos quidem huic uni studio penitus unquam dediti fuimus. Etenim omnes artes, quae ad humanitatem pertinent, habent quoddam commune vinculum et quasi cognatione quadam inter se continentur.
- 4. Sit igitur, judices, sanctum apud vos, humanissimos homines, hoc poëtae nomen, quod nulla unquam barbaria violavit. Saxa et solitudines voci respondent; bestiae saepe immanes cantu flectuntur atque consistumt: nos instituti rebus optimis non poëtarum voce moveamur? Homerum Colophonii civem esse dicunt suum, Chii suum vindicant, Salaminii repetunt, Smyrnaei vero suum esse confirmant; itaque etiam delubrum ejus in oppido dedicaverunt: permulti alii praeterea pugnant inter se, atque contendunt.
- 5. Ibis tandem aliquando, quo te jampridem tua ista cupiditas effraenata ac furiosa rapiebat. Neque enim tibi haec res affert dolorem, sed quandam incredibilem voluptatem: ad hanc te amentiam natura peperit, voluntas exercuit, fortuna servavit. Numquam tu non modo otium, sed ne bellum quidem nisi nefarium concupisti. Nanctus es ex perditis, atque ab omni non modo fortuna, verum etiam spe derelictis conflatam improborum manum.
- 6. Itaque ego illum exercitum, prae Gallicanis legionibus et hoc dilectu, quem in agro Piceno et Gallico Q. Metellus habuit, et his copiis, quae a nobis quotidic comparantur, magno opere contemno, collectum ex senibus desparatis, ex

agresti luxuria, ex rusticis decoctoribus, ex iis, qui vadimonia deserere quam illum exercitum maluerunt; quibus ego non modo si aciem exercitus nostri, verum etiam si edictum praetoris ostendero, concident. Hos, quos video volitare in foro, quos stare ad curiam, quos etiam in senatum venire, qui nitent unguentis, qui fulgent purpura, mallem secum miletes eduxisset, qui si hic permanent, mementote non tam exercitum illum esse nobis, quam hos, qui exercitum deseruerunt, perimescendos.

- 8. What is the object of miretur in 3? Give the Greek equivalent of etenim in the same paragraph.
- 9. What case of the pronoun is represented by quo in 5? Why?
- 10. Point out the relation of prae, in 6? What should non modo, in the same section, be translated, and why can it not be rendered as in other passages?

Translate :-

- 11. I begin to seek not only gratification, but also glory, from this pursuit, since it has been approved by your judgment, a most grave and learned man.
- 12. The ambassadors of King Attalus demanded, that the ships and captives, which had been taken in the naval battle at Chios, should be restored.
- 13. Point out the Latin words in the following sentence:

 "No one possessed of ordinary intelligence can, without deep interest, read the labors of scientistists in enlarging the bounds of knowledge, or fail to admire the ingenious experments and patient perseverance, the clear vision and close logic, by which they have achieved so mnny triumphs."
- 14. Give three or more Latin verbs (having mood, tense, number and person) that are in general use in English as nouns.
- 15. Write the participial roots of three or more Latin verbs that are in common use in English as adjectives or nouns.

ROCHESTER FREE ACADEMY.

EXAMINATION PAPER.

ALGEBRA.

JUNE, 1876.

$\mathcal{A}LGEBRA.$

- 1. Give a brief synopsis of your work in Algebra throughout the year, mentioning the different subjects as nearly as possible in the order in which they were taken up.
- 2. What do you understand by the discussion of a problem?
- 3. Give the value of x in the Problem of the Couriers, and discuss the problem under the supposition that m=n and d=0.
 - 4. What kind of a quantity is $6 \sqrt[8]{a^2 h^2}$?
- 5-7. What name is given to each of the figures, 6, 3 and 2, as it is used in the preceding quantity, and what is the use of each?
- 8. What name is given to the part of the expression following the figure 6?
 - 9. When is a radical in its simplest form?
 - Give example of similar radicals.
 - 11. Give example of a binomial surd.

Find the value in its simplest form of each of the following expressions:—

12.
$$x^{m-1} x^{m^2-1} y^{m-1}$$
.

13.
$$\sqrt[3]{a^{4m} c^{5m}}$$
.

14.
$$a^{-m}c (a^{mn}c^{2n}-a^{2mn}c^{n})^{\frac{1}{n}}$$

15. Add
$$\sqrt{(x+y)^{-1}}$$
, $\sqrt{a^2(x+y)^{-1}}$ and $a\sqrt{(x+y)(1-a)^{-2}}$.

16. Multiply
$$\frac{a}{b}\sqrt{\frac{x}{y}}$$
, $\frac{x}{y}\sqrt[3]{\frac{b^2}{a^2}}$, $\sqrt[3]{\frac{bx^2}{ay^2}}$.

17. Find the cube root of $8a + 36\sqrt[3]{a^3}b + 54\sqrt{ab^2} + 27b$.

Rationalize the denominators of the following fractions:

18.
$$\frac{10+\sqrt{6}}{10-\sqrt{6}}$$
.

19.
$$\frac{b}{a\sqrt[3]{b}}$$
.

$$20. \quad \frac{b}{c-\nu b^2-c^2}.$$

21. Find the value of x in the equation

$$\frac{Vcx-\dot{vc}}{Vbx-Vb} = \frac{Vx+c}{Vx+b}$$

22. The product of the sum and the difference of two numbers is 21, and the product of the sum of their squares and the difference of their squares is 609. What are the numbers?

Complete the squares and find the value of x in the two following equations:—

23.
$$3x^{-2}+2x^{-1}=1$$
.

24.
$$mx^2 - \frac{m^3 - n^2}{mn}x = 1$$
.

25. Prove that a simple quadratic surd cannot equal the sum of a rational quantity and a simple quadratic surd.

ROCHESTER FREE ACADEMY.

EXAMINATION PAPER.

BOTANY

JUNE, 1876.

BOTANY

- 1-3. Describe a plant's three organs of vegetation.
- 4-5. Describe the protecting organs of a flower.
- 6-7. Name the parts of the essential organs of a flower.
- 8. Of what does the embryo consist?
- 9. What are the four principal ways in which leaves may be arranged?
 - 10-11. Describe exogenous and endogenous plants.
- 12-13. How could you determine the two classes of plants from an inspection of their seeds?
 - 14-15. How from their flowers?
 - 16-17. How from their leaves?
- 18-19. When is inflorescence said to be indefinite, and when definite?
 - $20\mbox{--}21.$ How may a complete differ from a perfect flower?
- 22-23. How does a monopetalous differ from a polypetalous corolla?
- 24. How can you distinguish between a compound pistil and a single one?
 - 25. From what portions of a flower is the fruit derived?
 - 26. What are dehiscent fruits?
- 27. In what organs is the crude converted into the elaborated sap?
 - 28. Show in what way plants purify the air for animals.
 - 29. What constitutes a species in botany?

30. What constitutes an order or family?

SECOND PART

- 1-2. State the kind, venation, form and kind of edges of each of the specimen leaves No. 1 and No. 2.
- 3. To which class of plants does No. 1 belong; Endogens or Exogens? Why?
 - 4. To which does No. 2 belong? Why?
- 5-6. State the kind and venation of each of the specimen leaves No. 3 and No. 4.
- 7-8. State the class of plants to which each specimen belongs. Give the reasons for your statements.
- $9{-}10.$ State the arrangement of the leaves in specimen No. 5; also, describe their form.

ROCHESTER FREE ACADEMY.

EXAMINATION PAPER.

CHEMISTRY

JUNE, 1876.

CHEMISTRY

- 1. Define chemical affinity.
- 2. What is an atomic weight of an element?
- 3. How does it differ from specific gravity?
- 4. Write the symbols, for calcium, copper, gold and iron?
- 5. Write the names of the elements having the following symbols, Pb. Hg. K. Na.
 - 6. What is a binary compound?
- 7. Write the symbol for the compound having each molecule composed of one atom of potassium and one atom of iodine.
 - 8. Write the name of the above compound.
 - 9. Of what elements are oxacids composed?
 - 10. Of what elements are hydracids composed?
- 11.-12. State which one of the following named acids is an oxacid and which is a hydracid, and your reason for so doing. Sulphuric acid and Hydrochloric acid.
 - 13.-16. Write the names of the acids whose symbols are
- H Cl O. H Cl O2. H Cl O8. and H Cl O4.
- 17.-18. What is meant by saying that the atomic weight of oxygen is 16 and its specific gravity 1.1?
- 19. How may the oxygen be liberated from Potassium chlorate. K Cl O...
- 20. Name the compound remaining after the liberation of the oxygen.
 - 21. What is the great characteristic property of oxygen?
- 22. How do you account for the fact that ozone differs from oxygen, since both are composed of the same kin! of atoms?

- 23 How would you obtain nitrogen for purposes of experiment?
- 24. By what simple test could you distinguish a jar filled with oxygen from one filled with nitrogen?
 - 25. Why is the atomic weight of hydrogen 1?
- 26. If you had H₂ S O₄ and Zn. how would you proceed to the generation of hydrogen?
- 27. Represent by symbols and signs the chemical reactions taking place.
- 28.-29. Write the name and the symbol of the salt formed in the operation.
 - 30. What are the two characteristic properties of this gas?
 - 31. What is the chemical composition of water?
- 32. By what two methods has its composition been determined?
- 33. What is the chemical composition of the diamond?34. How would you be able to distinguish a jar filled
- with CO₂ from one filled with N?

 25. When light carburetted hydrogen (CH₄.) is burned what two compounds are formed?
 - 36. Define combustion
- v 37. What compound is formed by the combustion of carbonic oxide?
- √ 38. State the composition of the atmosphere.
- 39. Which constituent of the atmosphere aids in the support of vegetable life?
 - 40. Of what use is the nitrogen of the air?

PROBLEMS.

- 1. How much air would be needed to furnish two gallons of nitrogen?
 - 2, In 90 lbs. of water, how many lbs. of oxygen?
- 3. How many cubic feet of air are needed to burn 20 cubic feet of hydrogen?
- 4. How many lbs. of oxygen can be obtained from 122.5 lbs. of Patassium Chlorate (K Cl O₂)? The atomic weight of K. is 39; of Cl. 35.5.

- 5. How many lbs. of hydrogen are there in 73 lbs. of hydrochloric acid?
- 6-7. In 80 lbs. of Sulphuric anhydride SO₃, how many lbs. of S? The atomic weight of S. is 32. State the proportion—from which reduce the result.
- 8. How many lbs. of water must be added to the above to convert it into Sulphuric acid?
- 9. How much C. in 28 lbs. of CO? The atomic weight of C. is 12.
- 10. How many pounds of oxygen would convert it into Carbonic dioxyde?

ROCHESTER FREE ACADEMY.

EXAMINATION PAPER.

ENGLISH HISTORY.

JUNE, 1876.

English History.

- 1. Give the names of the three families that have reigned successively since 1485.
 - 2. Give a brief account of the English Reformation.
 - 3. What children of Henry Eighth reigned after him?
 - 4. What was the Invincible Armada?
- 5. State concisely the principal facts in the public life of Oliver Cromwell.
- 6. What two great calamities in the reign of Charles Second?
 - 7. In whose reign did the American Revolution occur?
- 8. After the Revolution, in what long war was England next engaged?

AMERICAN.

- 9. At what times and places were the first two English settlements made in America?
 - 10. What states were originally settled by the Dutch?
- 11. State briefly the circumstances which led to the revolution.
 - 12. Name the first two battles of the war.
 - 13. What surrender terminated it?
- 14. What was the first compact of government adopted by the states ?
 - 15 When was the Constitution adopted?
- 16. From what governments did the United States obtain Louisiana? Florida? California?

- 17. What was the cause of the war of 1812?
- 18. State the most important events of Jackson's administration.
- 19. When did the Mexican war begin, and how long did it continue?
 - 20. Who were the prominent American generals?
 - 21. What was the John Brown raid?
- 22. During whose administration was the Civil War begun?
 - 23. What were some of the most important battles?
 - 24. When was President Lincoln assassinated?
 - 25. Name the Presidents in their order.

ROCHESTER FREE ACADEMY. EXAMINATION PAPER. ENGLISH LITERATURE. JUNE, 1876.

English Literature JUNE, 1876.

- 1. Into how many periods does your author divide the English literature? Give the the dates of each period.
- 2. Who is the most eminent writer of the second period? What, is his best production? Give a brief sketch of its plan.
- 3. Mention the chief writers of the Elizabethan Age. For what is this age remarkable?
- 4. Give a sketch of the orgin and growth of the English drama.
- 5. Give a sketch of Shakespeare's life. How many plays are attributed to him? How many are original in plot. Upon what grounds has his authorship of the plays been questioned? To whom has it been credited?
- 6. Give a sketch of Milton's life. Into what periods does his literary career divide itself? Name the literary productions of each period.
- 7. Mention the chief satirists. To whom is the first plan usually given? What is his best production and against whom is it directed?
- 8. Name the chief writers of the Augustan age. How does the character of this age compare with that of the Elizabethan.
- 9. Who composed the "Lake School"? Who of them is most eminent? Why was the term given them?
 - Mention the successive Poets Laureate.

ROCHESTER FREE ACADEMY.

EXAMINATION PAPER.

Science of Government.

JUNE, 1876.

Science of Government.

- 1. What was the Union under the Confederation, and what were its leading defects?
- 2. Of how many branches did Congress under the Confederation consist, and how were the members chosen?
- 3. Where did the Convention that formed the Constitution assemble, and who was its President?
- 4. What is the Union under the Constitution, and how may the Constitution be amended?
- 5. What are the necessary qualifications of Representives, and by whom are they chosen?
- 6. Where does the Constitution vest the legislative, the executive; the judicial power?
- 7. What is appellate jurisdiction? What is a writ of habeas corpus?
- 8. What is the first process by which a bill may become a law? Define Veto.
- 9. What is the second process by which a bill may become a law, and what is an ex post facto law?
- 10. What is the third process by which a bill may become a law? Where must all revenue bills originate?
- 11. For what terms are patent rights granted and renewed? Name the officers of the President's cabinet.
- 12. For what terms are copy-rights granted and renewed? What body has the sole power of impeachment?
- 13. How many amendments have been added to the Constitution, and what is the last?

- 14. How shall vacancies in the Senate be filled? What is an impeachment?
- 15. How may an alien become a citizen of the United States? What is treason against the United States?
- 16. Where is the treaty-making power vested? What is a treaty?
- 17. What is piracy? What are letters of marque and reprisal?
- 18. Explain the method of electing the President. What is a bankrupt?
- 19. When does slander become a libel? What is an indictment?
- 20. How is the Supreme Court constituted? What are the elective powers of the Senate?
- 21. What is arson? What are the elective powers of the House?
- 22. In case of the death or removal of the President, the Vice President, and the President pro tempore of the Senate, who would act as President? What is your opinion regarding his qualifications?
- 23. What are the necessary qualifications of an elector? Define high seas.
- 24. In what case is the President without the power of pardon? What is the supreme law of the land?
- 25. When will the next election for President and Vice President be held? Who can not be electors of President and Vice President? To how many Presidential electors is each State entitled.

ROCHESTER FREE ACADEMY.

EXAMINATION PAPER.

GERMAN READER.

JUNE, 1876.

German Reader.

I.

What do the following tenses express in German?

- 1. The present,
- 2. The imperfect,
- 3. The perfect,
- 4. The pluperfect,
- 5. The future?

II.

How is the future participle obtained in German? Give an example.

III.

What do the following prepositions signify?

- 1. an,
- 2. auf.
- aus.
- 4. bei.
- 5. durch,

IV

TRANSLATE

- 1. Goethe died at Weimar in the year 1833.
- 2. While the Portuguese were endeavoring to reach India by continuing their explorations on the African coast, Columbus asserted that he could reach that land by steering west.
- 3. Louis of Bavaria and Frederick of Austria contended for the crown of Germany.

- 4. The Prussian army fought most bravely in the battle of Sadowa.
- 5. Melancthon is said to have been of a very gentle disposition.

V

TRANSLATE

Shr littet alle diese Schmach unschuldig,
Und keine Klage kam von euren Lippen!
—Ich staune über euch, ich steh' erschüttert,
Im tiessten Busen kehrt sich nur das Herz!
D, gerne nehm' ich euer Wort für Wahrheit,
Denn schwer wird mir's an eure Schuld zu glauben.
Doch konnt' ich träumen, daß ein menschlich Herz
Tas Ungeheure schweigend würde tragen!

VI.

Write a German composition on Baterlandeliebe.

VII.

Translate the following idioms:

- To fight a duel with pistols.
- 2. To put up with.
- 3. It is with us as with all the poor.
- 4. To part with.
- 5. To succeed with.

VIII.

Explain the formation of compound sentences.

IX.

How is the indicative mode employed in German?

Χ.

In a German sentence what is the position of the adverb?

- of time?
- 2. of place?
- of interrogation?
- 4. of negation?

ROCHESTER FREE ACADEMY.

EXAMINATION PAPER.

GERMAN GRAMMAR.

JUNE, 1876.

German Grammar.

I.

- Which are the seven auxiliary verbs of mode?
- 2. Why are they called auxiliary verbs of mode?
- 3. What does each of them express?

II.

How is the English pluperfect potential expressed in German?

III.

COMPARE

- 1. füß.
- 2. fchlecht,
- 3. reich,
- 4. ftarf,
- 5. ehel.

IV.

TRANSLATE

- Mohammed was living in the year 622.
- 2. Europe is about 3,250,000 square miles in extent, and has about 250,000,000 inhabitants.
- 3. The City of London has 800 streets, 550 churches and more than 3,250,000 inhabitants.
 - 4. The tallest tower in Breslau is 385 feet high.
- A week has seven days, a month has about four weeks, and a year has twelve months, or fifty-two weeks, or three hundred and sixty-five days.

V.

TRANSLATE

Die brei Blicke.

Ein frommer Mann murde einft gefragt, mober es fomme, bag er trot aller Drangfale des Lebens doch Beinen Gleichmuth bewahren fonne. Er antwortete: "Das fommt daber, daß ich meine Augen wohl in Acht nehme; benn alles Boje fommt burch die Sinne jum Bergen, aber auch bas Bute." Auf die meitere Frage, wie er das mache, fagte er: "Jeden Morgen, ehe ich an die Beichafte und unter die Menschen gehe, richte ich meine Augen bebachtiam auf drei Dinge: Erftens, hebe ich fie gen Simmel und erinnere mich, daß mein Sauptgeschäft und das Biel meines lebens und Strebens dort oben fei. Breitens, fente ich fie jur Erde und bedente, wie wenig Raum ich bedarf, um einft mein Grab barin gu Drittens endlich, schaue ich um mich und betrachte bas Loos meiner Mitmenschen. Auf diese Weise trofte ich mich mit dem Meinigen, und lebe mit Welt und Menfchen gufrieden in (Sott. Uuerbach.

VI.

CONJUGATE

- 1. (oben, in the present,
- 2. schlagen, in the imperfect,
- 3. wollen, in the perfect,
- 4. dürfen, in the first future,
- 5. miiffen, in the second future.

VII.

Decline the personal pronoun in full.

What do the adverbs hier and hin denote?

IX.

Accent five compound verbs in order to make them

- 1. separable,
- 2. inseparable.

X.

How are adverbs formed?

- 1. from nouns and participles?
- 2. from adjectives?
- from pronouns?
- 4. from verbs?

ROCHESTER FREE ACADEMY.

EXAMINATION PAPER.

CÆSAR.

JUNE, 1876.

CAESAR.

JUNE, 1876.

1. Translate:-

Ita ancipiti proelio din atque acriter pugnatum est Diutius quum sustinere nostrorum impetus non possentaltěri se, ut coepěrant, in montem recepērunt, altěri ad impedimenta et carros suos se contulerunt; nam hoc toto proelio, quum ab hora septima ad vespěrum pugnatum sit, aversum hostem videre nemo potuit. Ad multam noctem etiam ad impedimenta pugnātum est, propterea quod pro vallo carros objecerant et e loco superiore in nostros venientes tela conjiciébant, et nonnulli inter carros rotasque matăras ac tragulas subjiciebant nostrosque vulnerabant. Din quum esset pugnatum, impedimentis castrisque nostri potīti sunt. Ibi Orgetorigis filia atque unus e filiis captus est. Ex eo proelio circiter hominum milia cxxx superfuērunt eaque tota nocte continenter iërunt: nullam partem noctis itinère intermisso, in fines Lingonum die quarto pervenèrunt, quum, et propter vulněra militum, et propter sepulturam occisorum, nostri, triduum morāti, eos sequi non potuissent. Caesar ad Lingones litteras nunciosque misit, ne eos frumento neve alia re juvārent: qui si juvissent, se eodem loco, quo Helvetios, habiturum Ipse, triduo intermisso, cum omnibus copiis eos sequi coepit.

- (a) Parse "diutius."
- (b.) In what case and construction are "impedimentis" and "castris"
- (c.) · Give English derivatives from either of the roots of "mitto."
- (d.) "Hora septima" would be what hour of the day according to our reckoning?

2. Translate:-

Multa ab Caesăre in eam sententiam dicta sunt, quare negotio desistěre non posset; et neque suam neque popůli Romāni consuetudinem pati, uti optime meritos socios deserêret; neque se judicăre, Galliam potius esse Ariovisti quam populi Romāni Bello superatos esse Arvernos et Rutēnos ab Q. Fabio Maximo, quibus popůlus Romānus ignovisset, neque in provinciam redegisset, neque stipendium imposuisset. Quod si antiquissimum quodqne tempus spectari oportēret, popůli Romāni justissimum esse in Gallia imperium: si judicium senătus observāri oportēret, liběram debēre esse Galliam, quam bello victam suis legibus uti volnisset.

(a.) Change "multa ab cæsare in eam sententiam dicta sunt" into the corresponding expression with an active verb.(b.) Give the positive and comparative degrees of "optime."

(c.) How would you translate "quisque" with the

superlative?

(d.) Give the case and construction of "legibus."

3. Translate:-

Palus erat non magna inter nostrum atque hostium exercitum. Hanc si nostri transīrent, hostes exspectābant; nostri autem, si ab illis initium transeundi fiĕret, ut impeditos aggrederentur, parāti in armis erant. Intĕrim proelio equestri inter duas acies contendebātur. Ubi neutri transeundi initium faciunt, secundiōre equitum proelio nostris, Caesar suos in castra reduxit. Hostes protinus ex eo loco ad flumen Axōnam contenderunt, quod esse post nostra custra demonstrātum est. Ibi, vadis repertis, partem suarum copiārum traducēre conāti sunt, eo consilio, ut, si possent, castellum, cui praeērat Quintus Titurius legātus, expugnārent pontemque interscindērent: si minus potuissent, agros Remōrum popularentur, qui magno nobis usui ad bellum gerendum erant, commeatuque nostros prohibērent.

- (a.) What figure of rhetoric occurs in the first sentence.
- (b.) What part of speech is "transeundi," and how governed.
- (c.) In what mood are "expugnarent," and "interscinderent," and why in that mood?
 - (d.) What is the construction of "commeatu?"

4. Translate:-

Quum dies hibernörum complüres transissent, frumentumque eo comportari jussisset, subito per exploratores certior factus est, ex ea parte vici, quam Gallis concesserat, omnes noctu discessisse, montesque, qui impenderent, a maxima multitudine Sedunorum et Veragrorum teneri. aliquot de caussis acciderat, ut subito Galli belli renovandi legionisque opprimendae consilium caperent: primum, quod legionem, neque eam plenissimam, detractis cohortibus duabus et compluribus singillatim, qui commeatus petendi caussa missi erant, absentibus, propter paucitatem despiciēbant; tum etiam, quod propter iniquitatem loci, quum ipsi ex montibus in vallem decurrerent et tela conjicerent, ne primum quidem posse impětum suum sustiněri existimābant. Accedēbat, quod suos ab se libēros abstractos obsīdum nomine dolēbant, et Romānos non solum itinérum caussa, sed etiam perpetuae possessionis, culmina Alpium occupare conari et ea loca finitimae provinciae adjungere sibi persuasum habebant.

- (a.) Parse "dies."
- (b.) When is "per"with the accusative used to denote the means in preference to the ablative?
 - (c.) What is the subject of "conari."
- (d.) How many genders has "locus" in the plural and what is the difference in meaning?
 - 5. Give the positive and comparative of
 - (a.) " " " " Summus.
 - (h.) " " " Maximus.
 - (c.) " " " Extremus.
 - (d.) " " " " " " Infimus. (e.) " " " " " Primus.
 - (f.) " " " " Ultimus.
 - 6. Translate into Latin:
 - (a.) The noblest men have come.
 - (b.) Sincere faith unites true friends.
 - (c.) He spoke concerning the nature of the war.
 - (d.) The sun is the light of the world.
- (e.) Philosophy, the mother of all the arts, is the invention of the gods.

ROCHESTER FREE ACADEMY.	
EXAMINATION	PAPER.
VIRGIL.	
JUNE, 1876.	
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VIRGIL

- 1. What is the subject of the second book of the Æneid?
- 2. How long did the siege of Troy continue, and how was the city finally taken?
- 3. Who was Laocoon? Syllabicate and accent the name.
 - 4. By whom was Priam slain?
 - 5. Who was Creüsa, and what became of her?
 - 6. Of what does book third give an account?
- 7. Who was Polydorus, and how did he come to his death?
- 8. By whom does the poet tell us the Strophades were inhabited?
- 9. Who was the chief (maxima) of these, and what prediction did she utter to the Trojans?
- 10. What fabulous account of the eruption of Mount Ætna does the poet give?

Translate:-

11. Improvisum aspris veluti qui sentibus anguem Pressit humi nitens, trepidusque repente refugit Attolentem iras, et cœrula colla tumentem.

Haud secus Androgeos visu tremefactus abibat.

Irruimus, densis et circumfundimur armis:

Ignarosque loci passim et formidine captos

Sternimus: aspirat primo fortuna labori.

Atque hic exultans successu animisque Chorœbus,

O socii, quà prima, inquit, fortuna salutis Monstrat iter, quàque ostendit se dextra, sequamur.

- 12. Noctem illam tecti sylvis immania monstra
 Perferimus: nec, quae sonitum det causa, videmus.
 Nam neque erant astrorum ignes, nec lucidus æthrå
 Sidereå polus; obscuro sed nubila cælo,
 Et Lunam in nimbo nox intempesta tenebat.
 Postera jamque dies primo surgebat Eoo,
 Humentemque Aurora polo dimoverat umbram;
 Cùm subitò è sylvis, macie confecta supremâ,
 Ignoti nova forma viri, miserandaque cultu,
 Procedit, supplexque manus ad litora tendit.
- 13. Audiit exanimis, trepidoque exterrita cursu,
 Unguibus ora soror fœdans et pectora pugnis,
 Per medios ruit, ac morientem nomine clamat:
 Hoc illud, germana, fuit? me fraude petebas?
 Hoc rogus iste mihi, hoc ignes aræque parabant?
 Quid primùm deserta querar? comitemne sororem
 Sprevisti moriens? eadem me ad fata vocâsses,
 Idem ambas ferro dolor, atque eadem hora tulisset.
 His ctiam struxi manibus, patriosque vocavi
 Voce Deos; sic te ut positâ crudelis abessem?
 - 14. Scan the first five lines of 12.
- 15. Point out an ecthlipsis, a synalcepha and a paranomasia, in the same.
- 16. Give the parts of pressit, sternimus, circumfundimur (No. 11), and sprevisti (No. 13).
 - 17. Govern humi (11), noctem (12) and te (13).
- 18. With what does dextra, in 11, agree in construction, and with what in sense—i. e. with what might it be made to agree if this were prose?
- 19. Derive and give the true meaning of asperity, formidable, consecutively, aspiration and desiccate; and state where the accent of the last word should be placed, and why; also why it is necessary that it it should be spelled with two C's?

20. Point out ten or more Latin words in the following English sentence: "Further study would teach him that many of our seemingly insignificant and barbarous consonantal monosyllables are pregnant with the mightiest thoughts, and alive with the deepest feeling; that the language of the purposes and the affections of the will and of the heart, is genuine English-born; and that the vocabulary of the most impresive and effective orators has been almost wholly drawn from the same pure source."

ROCHESTER FREE ACADEMY.

EXAMINATION PAPER.

Greek Lessons.

JUNE, 1876.

Greek Lessons.

Translate--

- 1.— Τις οδτω μαίνεται, δστις οὐ βούλεταί σοι φίλος εἶναι; Πρὶν δῆλον εἶναι, ὅ τι οἱ ἄλλοι ελληνες ἀποχρινοῦνται Κύρφ. Μένων δὲ, πριν δῆλον εἶναι, τὶ ποιήσουσιν οἱ ἄλλοι στρατι ῶται, πότερον εψονται Κύρφ ἢ οὕ, συνέλεξε τὸ αὐτοῦ στράτευμα χωρις τῶν ἄλλων, και ἔλεξε τάδε. Εἰπὲ, τινα γνώμην ἔχεις περι τῆς πορειας.
- 2.— Ταύτην μέν οδν την ημέραν αὐτοῦ ηὐλίζοντο ἐπὶ τοῦ αἰγιαλοῦ πρὸς τῷ λιμένι. Τὸ δὲ χωρίον τοῦτο. ὁ καλεῖται Κάλπης λιμήν, ἔστι μὲν ἐν τῆ Θράκη τῆ ἐν τῆ ᾿Ασίφ ἀρξαμένη δὲ ἡ Θράκη αὖτη ἐστὶν ἀπὸ τοῦ στόματος τοῦ Πόντου μέχρι Ἡρακλείας, ἐπι δεξιὰ εἰς τὸν Πόντον εἰσπλέοντι.
- 3.— Τούτου τὸ εὖρος δύο πλέθρα. Ἐνταῦθα ἦσαν τὰ Συεννέσιος βασίλεια, τοῦ Κιλίχων βασιλεως διὰ μεσης δὲ τῆς πόλεως ρεῖ ποταμὸς, Κύδνος ὄνομα, εὖρος δύο πλέθρων. Απαγγέλλει, ὅτι φεὐγουσιν ἀνὰ χράτος. Ἡν δὲ, ὅτε ἐτελεὐτα, ἀμφὶ τὰ πεντήχοντα ἔτη. "Ότε δὲ ἀπέθνησχεν, ἢν ἐτῶν ὑς τριάχοντα.
- ... Καὶ ἐν τούτψ Κλέανδρος ἀφιχνεῖται, δύο τριήρεις ἔχων, πλοῖον δ' οὐδέν. 'Αλλά ταῦτα μὲν ψευδῆ ἡν. 'Επεί δ' ἡσαν ἀφανεῖς, διῆλθε λόγος, ὅτι διώχει αὐτοὺς Κῦρος τριήρεσιν. Οἱ πολέμοιοι ἱππεῖς φεύγουσι χατὰ τοῦ πρανοῦς. 'Επὶ δὲ τὸ χατεργάζεσθαι ὧν ἐπιθυμοίη, συντομωτάτην ψετο όδὸν είναι διὰ τοῦ ἐπιορχεῖν τε χαι ψεύδεσθαι χαὶ ἐξαπατῷν τὸ δ' ὁπλοῦν χαὶ τὸ ἀληθὲς ἐνόμιζε τὸ αὐτὸ τῷ ἡλιθίψ είναι

- 5.—0! δε στρατιώται ως είδον τον Ξενοφώντα, προσπίπτουσιν αυτώ πολλοί, και λέγουσι "Νυν σοι έξεστιν, ω Ξενοφών, ανδρί γενέσθαι "Εχεις πόλιν, έχεις τριήρεις, έχεις χρήματα, έχεις ανδρας τοσούτους. Νυν αν, εί βούλοιο, σύ τε ήμως δνήσαις, και ήμεις σε μέγαν ποιήσαιμεν."
- 6.—They ride back to their own village. What age do you now wait for? Let them inflict severe blows upon each other. It is time for us to be upon our guard against them, as enemies. It is necessary for you to deliberate for your own interest. For I am no longer general, but Clearchus.
- 7.—But Lycius made much the greater haste. The barbarians escape into the nearest villages. The enemy were now coming nearer. The targeteers ran much faster than the heavy-armed troops. The soldiers ascend into the highest village. They watched each other more negligently.
- 8.—The rivers flow through the plain of Cilicia into the sea. The river was called Mæander. The barbarians call the river Marsyas. The soldiers ask Seuthes for money. Ask Cyrus for your pay. Ask Cyrus for our pay. They endeavored to rob us of our pay. Soldiers, let us bring stones, and erect a mound.
- 9.—When they have arrived there, they will deliberate in view of this. Tamos the admiral excluded them from Ephesus. I would most gladly close the gates. Hear that tumult. He called the Scythian archers. He called the generals into his tent as advisers. We will hear you.
- 10.—They sailed five nights and five days with a contrary wind. The Cerasuntians were making a din with their spears against their shields. For he had nothing harsh in his disposition, but was always friendly and kind. We should like extremely to hear the affair. When the soldiers were out of bread, they came to us.

- 11.-What does δηλου, in 1, modify?
- 12.-Compare συντομωτάτην, in 4.
- 13.—Account for the case of $d\nu\delta\rho i$, in 5.
- 14.—Give the derivation and etymon of Archaeology, chronometer, hydrant, anemometer and pantomime.
- 15.—Derive an English word from each of the following: 'Αλλήλων, ἀρεθμός, θεός, κέρας, λίθος, κύων, ναῦς, ὅρνες, πῦρ.

ROCHESTER FREE ACADEMY. EXAMINATION PAPER. HOMER. JUNE, 1876.

HOMER.

- 1. State the more probable facts in regard to the poet's life.
 - What are the great poems attributed to him?
- 3. What objections can you give against the supposition that he composed and wrote those poems as the poets of our day compose and write their works?
- 4. What can you say of the influence of Homer on the Greeks themselves, on the Latin poets, and on the literature of modern times?
- 5. What is the digamma, and what have we to do with in the proper reading of this poet?

Translate-

- 6.— Ως ἔφατ' εὐχόμενος τοῦ δ' ἔχλυε Φοῖβος Απόλλων. βῆ δὲ χατ' Οὐλύμποιο χαρήνων, χωόμενος χῆρ, τόξ' ἄμοισιν ἔχιων ἀμφηρεφέα τε φαρέτρην ἔχλαγξαν δ' ἄρ' ὀἴστοὶ ἐπ' ἄμων χωομένοιο, αὐτοῦ κινηθέντος · ὁ δ' ἤῖε νυχτὶ ἐοιχώς · ἔζετ' ἔπειτ' ἀπάνευθε νεῶν, μετὰ δ' ἰὸν ἔηχεν δεινή δὲ χλαγγή γένετ' ἀργυμέοιο βιοῖο. οὐρῆας μὲν πρῶτον ἐπψίχετο χαὶ χύνας ἀργούς · αὐτὰρ ἔπειτ' αὐτοῖσι βέλος ἐχεπευχὲς ἐφιείς, βάλλ' αἰεὶ δὲ πυραὶ νεχύων χαίοντο θαμειαί.
- Μάντι κακῶν, οὐ πώποτέ μοι τό κμήγυον εἶπες!
 αἰεί τοι τὰ κάκ' ἐστὶ φίλα φμεσὶ μαντεύεσθαι
 ἐσθλὸν δ' οὕτε τί πω εἶπες ἔπος, οὕτ' ἐτέλεσσας

καὶ νῦν ἐν Δαναοῖσι θεοπροπέων ἀγομεύεις, ὡς δὴ τοῦδ' ἔνεκά σφιν Ἑκηβόλος ἄλγεα τεύγει, οὕνεκ' ἐγὼ κούμης Χμυσηίδος ἀγλά ἄποινα οὐκ ἔθελον δέξασθαι · ἐπεὶ πολὺ βούλομαι αὐτήν οἴκοι ἔχειν, καὶ γάμ βα Κλυταιμνήστμης προβέβουλα, κουριδίης ἀλόχου · ἐπεὶ οὐ ἔθεν ἐστὶ χερείων, οὐ δέμας, οὐδὲ φυήν, οὕτ' ἄμ φρένας, οὕτε τι ἔργα.

- 8. μήτε σὺ τόνδ', ἀγαθός περ ἐἀν, ἀποαίρευ χυύρην, ἀλλ' ἔα, ὧς οι πρῶτα δόσαν γέρας υἴες 'Αγαιὰν' νήτε σὺ, Πηλείδη, ἔθελ' ἐμιζέμεναι βασιλῆι ἀντιβίην ἐπεὶ οὐποθ' όμοιης ἔμμορε τιμῆς σχηποῦγος βασιλεύς, ὧτε Ζεύς χὖδος ἔδωχεν. εἰ δὲ σὺ χαρτερός ἐσσι, θεὰ δέ σε γείνατο μήτημ. ἀλλ' ὅγε φέρτερός ἐστιν, ἐπεὶ πλεόνεσσιν ἀνάσσει. Ατρείδη, σὺ δὲ παῦε τεὸν μένος ' αὐτὰρ ἔγωγε λίσσομ', 'Αγιλλῆι μεθέμεν χόλον, ὂς μέγα πῶσιν ἔρχος Αχαιοῖσιν πέλεται πολέμοιο χαχοῖο.
- 9. " Ως είπων εν γερσι τίθει · ὁ δ΄ εδέξατο χαίρων παΐδα φίλην τοὶ δ΄ ωλα θεψ κλειτήν έκατομβην έξείης έστησαν εδόμητον περι βωμόν · χερνίψαντο δ΄ έπειτα, καὶ οὐλοχύτας ἀνέλοντο. τοτσιν δε Χρύσης μεγάλ' εὐγετο, χεῖρας ἀνασχών · Κλῦθί μευ, ' Αργυρότος', ὁς Χρύσην ἀμφιβέβηκας,

Κίλλαν τε ζαθέην, Τενέδοιό τε ζει ανάσσεις ἦδη μέν ποτ' έμεῦ πάμος ἔχλυες εὐξαμένοιο. τίμησας μὲν εμέ, μέγα δ' ἴψαο λαὸν 'Αχαιῶν. ἦδ' ἔτι χαὶ νῦν μοι τόδ' ἐπιχρήηνον ἐἐλδιορ.

10.— 'Αλλ' ὅτε δή ρ' ἐχ τοῖο δυωδεχάτη γένετ, ἤώς, καὶ τότε δὴ πρὸς "Ολυμπον ἴσαν θεοὶ αιὲν ἐόντες πάντες ἄμὰ, Ζεῦς δ' ἤρχε. Θέτις δ' οὐ λήθετ' ἐφετμέων παιδὸς ἑοῦ, ἀλλ' ἢγ' ἀνεδύσατο χῦμα θαλάσσης, ἢερίη δ' ἀνέβη μέγαν οὐρανὸν Οῦλυμπόν τε εῦρεν δ' εὐρύοπα Κρονίδμν ἄτερ ἤμενον ἄλλων, ἀχροτάτη χορυφῆ, πολυδειράδος Οὐλύμποιο. χαί ρα πάροιδ' αὐτοῖο χαθέζετο, χαὶ λάβε γούνων σχαῖ, ' δεξιτερῆ δ' ἄρ' ὁπ' ἀνθερεῶνος ἐλοῦσα, λισσομένη προσέειπε Δία Κρονίωνα ἄναχτα.'

- 11. Scan the first three lines of 7.
- 12. What syllable in the last line has its quantity affected by the digamma?
- 13. Account for the accent on the word Πηληϊάδεω, when its final vowel is long?
 - 14. Govern τοῦ, κῆρ and αὐτοῦ, in 6,
- 15. In what mode is $\mu\epsilon\theta\dot{\epsilon}\mu\epsilon\nu$, and how was the later form derived from that?

ROCHESTER FREE ACADEMY

Examination Papers.

German Reader.

November, 1875.

GERMAN READER.

1.-Write a German composition on Naturgeschichte.

2.—Translate:

Fronmer Stab! O, hätt ich nimmer Mit dem Schwerte dich vertauscht! Hätt! es nie in deinen Zweigen, heil'ge Eiche, mir gerauscht! Wärft du nimmer mit erschienen, hohe Himmelstönigin! Rinnn, ich kann sie nicht verdienen, Deine Krone, nimm sie hin!

Ach, ich fah ben himmel offen Und ber Sel'gen Angesicht! Doch auf Erden ist niem hoffen! Und im himmel ist es nicht! Wusteft du ihn auf mich laden, Diesen funchtbaren Berus! Kount' ich diese Herz verhärzen, Das der himmel fühlend schuf!

Willft bu beine Macht verfünden, Wähle fie, die frei von Sünden, Stehn in beinem ew'gen Haus; Deine Geister sende aus, Die Unsterblichen, die Reinen, Die nicht fühlen, die nicht weinen! Richt die zurte Jungfrau wähle, Richt der Hirtin weiche Seele!

Kümmert mich das Loos der Schlachten, Mich der Zwist der Könige? Schuldlos trieb ich meine Lämmer

Auf des stillen Berges Höh'. Doch du rissest mich ins Leben, In den stolzen Fürstensaal, Mich der Schuld dahin zu geben, Uch, es war nicht meine Wahl!

- 3.-To what do the four cases in German correspond in English?
 - 4.—How is the German Genitive Absolute used?
- 5 .- Trauslate: Marie mar bei Agnes auf Besuch, ale wir sie suchten.
- 6.—What is the original and what the present signification of touten?
 - 7.—How must adjectives be changed when used as nouns?
- 8.—When several adverbs, or adverbial expressions, are used in the same sentence, which precede all others?
 - 9.—Translate: He is incapable of such a deed.

10.—Translate:

- a. To die of hunger,
- b. To go one's way,
- c. To live in hope,
- d. You are a dead man,
- e. The field of battle,
- f. Recht haben.

ROCHESTER FREE ACADEMY

Examination Papers.

READING.

November, 1875.

READING.

- 1. Should the reader be, at the time of reading, in sympathy with the *author*, or, at least with the *characters* represented as speaking?
- 2. Can there be such sympathy when the reader does not comprehend the author's meaning?
 - 3. How may one get at the author's meaning?
- 4. May the dictionary be of service to the reader, aside from definitions?
- 5. What are the advantages of a *silent* study of a passage to be read?
- 6. Is silent study alone sufficient to ensure effective elecution?
- 7. Are pauses ever to be made except when denoted by marks of punctuation?
- 8. What pauses, not indicated by punctuation marks, should be made in the following passage:
 - (a.) Give name to these pauses, and, (b) tell their use. Now the bright morning star, day's harbinger, Comes dancing from the east, and leads with her The flowery May, who from her green lap throws

The yellow cowslip, and the pale primrose.

ROCHESTER FREE ACADEMY

Examination Papers.

LOGIC

November, 1875.

LOGIC

I .- Define Logic.

II .- Give the distinction between a science and an art.

III.-Why is Logic a science rather than an art?

IV —Name and define the three acts of mind considered in this study.

V - Define a general notion.

VI.—Define a term, and name the various kinds of terms.

VII.—What is meant by the extension and intension of a term? Illustrate.

VIII.—Define a proposition, and name the parts of which it is composed.

IX.—Name the four kinds of categorical propositions and their symbols.

X.—What is the the quantity of each of the following propositions:

(1.) Knowledge is power.

(2) Nebulæ are material bodies.

(3.) Light is the vibration of an ether.

XI.—Name the different kinds of conversion and state the rules for valid conversion.

XII.—Convert the following propositions:

(1.) All metals are elements.

(2.) No men are immortal.

XIII.—Define each of the five predicables.

XIV .- State the three Fundamental Laws of Thought.

XV.—Define and illustrate mediate and immediate inference.

XVI.-Give the rules for the conduct of the syllogism.

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FREE ACADEMY

Examination Papers.

BOOK-KEEPING.

November, 1875.

Book-Keeping.

- I.—What is an account? What is a resource? What is a liability? The sides of an account? How is a business transaction recorded?
- II.—Give the rule for journalizing. The required condition of debits and credits? Into what classes are accounts divided, and what is the relation between them? With what should Stock be credited? What is the object of closing the ledger?
- III.—What is the first step in closing the ledger? The second step? The third step? The fourth step? The fifth step? The sixth step?
- IV.—Give rules for finding the following: The present worth; the net investment; the insolvency; the gain; the loss.
- V.—What is negotiable paper? Write a promissory note, making it a bill receivable, and name and define the parties to it. What is a draft? Write a draft on yourself, at ten days, in favor of M. Michaels, accept it, and name and define the parties to it.
- VI.—What is a protest, and when must it be made? Who is an indorser, and for what is an indorsement made? When goods are shipped to an agent to be sold on the shipper's account, what title does the shipper use, and with what does he debit or credit the account? What title does the agent use, and with what does he debit the account?
- VII.—Robert Paviour bought of Wm. Henry, 1035 feet of boards at \$23.25 per 1000; 911 feet of scantling at \$2.15 per 100; 1350 lbs. of coal at \$6.42 per ton. He paid \$12.50

in cash, and gave his note at ninety days, with interest, for the balance. Write out a bill of the above, also the note, and make the proper journal entry for each party.

VIII.—The above note having matured, the maker paid the interest due and gave a new note at ten days, for the principal. Write the note and make the proper journal

entry for each party.

IX.--F. Aldrich sold Wm. Henry 25 bbls. of apples at \$2.25; 4½ bush. of quinces at \$1.80. He received in payment, \$12.50 in cash, the above note, and Henry's acceptance for the balance. Make the proper journal entry for each party.

X.—A bought cotton at 13 cents, sold it at 16 cents, and gained \$63.75; gain per cent. and amount invested? B sold goods for \$530.75, thereby losing 3½ per cent.; cost of goods and amount lost? C sold his store for \$15000, thereby gaining 2½ per cent.; cost of store and amount gained?

ROCHESTER FREE ACADEMY

Examination Papers.

igl(ALGEBRA. igl)

ALGEBRA.

- 1. Define Algebra. A term. A factor. Give a quantity consisting of simple terms. Give a quantity consisting of compound factors.
- 2. What is the difference between the arithmetical and the algebraic meaning of the word addition?
- 3. How may we represent both the magnitude and the quality of an algebraic quantity? Illustrate
 - 4. Give a synopsis of the subject of factoring.
- 5. What is the reason for the manner of finding G. C. D. of three quantities? What is the L. C. M. of two or more quantities, and of what must it be composed?
- 6. What is the real sign of a fraction? What is its apparent sign? What is a reciprocal of a quantity?
 - 7. Define and illustrate an equation of condition.
 - 8. How is the degree of an equation denoted?
- 9. Show that a simple equation, having but one unknown quantity, can have only one root.
- 10. Remove signs of aggregation and reduce the result in $a-\{-6-[9m-x]-(5a-m)\}-(3a-7)$.
- 11. Find the sum of $3(x^2-y^2)$, $8(x^3-y^3)$, $-5(x^3-y^3) + 6(x^2+y^2)$ and $7(x-y)^3$.
 - 12. Multiply $(a+b)^2$ by $(a-b)^3$.
- 13. By what quantity is $8m^8-|-1|$ divisible? How do you know it to be so divisible?
 - 14. Give factors of x^4-17x^3-1-16 . Of ac-1-ad-1-bd-1-bc.

- 15. Find L. C. M. of $x^2-|-7x-|-10$, $x^2-|-2x-|-8$ and x^2+x- 20, and show that your result is composed of the necessary factors.
 - 16. Reduce to simplest terms $\frac{3x^3-16x^2+23x-6}{2x^3-11x^2+17x-6}$
 - 17. Multiply $\frac{a^4-b^4}{a-b}$ by $\frac{a^2}{ab-b^2}$.
- 18. Find the value of ax+by, when x=cg-br and y=ar-cp. aq-bp
 - 19. Find the value of x in the following equations:

$$\frac{x-3}{2} + \frac{x}{3} = 20 - \frac{x-|-19}{2}$$

20. $a^{2}(x-1) + am(x-2) = m^{2}$.

ROCHESTER

FREE ACADEMY

Examination Papers.

 ${\it Ancient \ History}.$

ANCIENT HISTORY

- 1, 2. In what regions did the early nations locate? What conditions favorable to settlement, found here?
- 3. Give divisions of Caucasian race based on likeness of language.
- 4-6. Give names of four ancient historians; their eras and subjects. Name other sources of our knowledge of antiquities.
- 7, 8. What empires were dominant in the ninth, seventh, sixth and fourth centuries? What nation mistress of the world 30 B. C.?
 - Name the capital cities of six Oriental Monarchies.
- 10-12. Give four significant dates in Egypt's history. Any practice peculiar to the Egyptians. In what were they advanced?
- 13, 14. Give dimensions of Palestine. Account of the captivities.
- 15-18. Locate Phœnicia. Her noted cities. Characterize this people. Where did they plant colonies?
- 19, 20. Sketch the history of the Lydian kingdom. Its last monarch.
- 21-25. What was the extent of the Persian Empire? Who founded, who organized it? Its duration? What books of sacred history contain accounts of these kings?
- 26-28. Who captured Babylon? By what means? Was the city ever destroyed?
- 29-31. Which was the most important state of the Peloponnesus? Of Central Greece? The two northern divisions of Greece?

- 32-34. When did Lycurgus live? What character did he give the Spartans? What element of progress was developed in Grecian civilization that did not exist in the Oriental Nations?
 - 35. What led to the Persian invasion of Greece?
- 36-39. Describe the battle of Marathon. Preparations for war made by Xerxes. The situation of the Spartans at Thermopylae. Where were the final contests?
- 40-43. Trace the course of Alexander the Great in his conquest of Asia, naming three battles. How long did the Macedonian Empire hold together? Who shared it after the death of Alexander? What did this wonderful battle-march do for the world?
- 44, 45. How long did the Ptolemies govern Egypt? What great city flourished there? Famous for what?
- 46-49. What two Orders existed in Rome? Origin of the term Senate? What laws were devised for the relief of the oppressed class? By what action did Rome become a democracy?
- 50, 51. Who was Pyrrhus? Where does he figure in Roman history?
- 52-54. What nations carried on the punic wars? Most successful generals on both sides? What was the last punic war?
- 55-57. Who formed the first triumvirate? Their object? What factions did they represent?
- 58-62. Who has told the story of the invasion of Gaul? Why and how did Cæsar declare war against Rome? What time was spent in Italy? Where did he meet Pompey? How old was Cæsar when assassinated?
- 63-67. When did Rome become an Empire? What power held by Cæsar? Meaning of title, Augustus? Under which Emperor did the birth of Christ occur? Who was the first Christian Emperor?
 - 68. What date marks the limit of ancient history?

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FREE ACADEMY

Examination Papers.

ARITHMETIC

ARITHMETIC.

- 1. Write the following number in figures: Eight hundred sixty-four billion five hundred thirty-eight million two hundred seventeen thousand nine hundred fifty-three.
- 2. B has \$620, C \$1116, and D \$1488, with which they agree to purchase horses at the highest price per head that will allow each man to invest all his money; how many horses can each man purchase?
- 3. If A can build 14 rods of fence in a day, B 25 rods, C 8 rods, and D 20 rods, what is the least number of rods that will furnish a number of whole days' work to either one of the four men?
- 4. A man owning \$ of 156\$ acres of land, sold \$\frac{1}{2}\$ of \$\frac{3}{4}\$ of his share; how many acres did he sell?
- 5. A gentleman owning § of an iron foundry, sold § of his share for \$2570\(\frac{2}{3} \); how much was the whole foundry worth?
- 6. A man agreed to build 59.5 rods of wall; having built 8.5 rods in 5 days, how many days will be required to finish the wall at the same rate?
 - 7. Give the table of cubic measure.
 - 3. Give the table of liquid measure.
- 9. Reduce 100 of a pound Troy, to the fraction of a pennyweight.
 - 10. What is the value of .6625 of a mile.
- 11. How much time will a person gain in 36 years by rising 45 minutes earlier, and retiring 25 minutes later, every day, allowing for 9 leap years?

- 12. Buffalo is ?8° 55' west, and the city of Rome 20° 30' east longitude; what is the difference in time?
- 13. In a school room 32 feet long, 18 feet wide, and 12 feet 6 inches high, are 60 pupils, each breathing 10 cubic feet of air in a minute; in how long a time will they breathe as much air as the room contains?
- 14. If an army of 600 men have provisions for 5 weeks, allowing each man 12 onnces a day, how many men may be maintained 10 weeks with the same provisions, allowing each man 8 ounces a day?
- 15. An army which has been twice decimated in battle, now contains only 6480 men; what was the original number in the army?
- 16. My Charleston agent has charged \$74.25 for purchasing 26100 pounds of rice at \$4.50 per 100 pounds; required the rate of his commission.
- 17. A young man receiving a legacy of \$48,000 invested one-half in 5 per cent. stock at 95½ per cent., and the other half in 6 per cent. stock at 112 per cent., paying brokerage at ½ per cent.; what annual income did he secure from his legacy?
- 18. Three men hire a pasture for \$55.50. A put in 5 cows, 12 weeks: B, 4 cows, 10 weeks: and C, 6 cows, 8 weeks; how much ought each to pay?

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Examination Papers.

Mental Philosophy

$Mental\ Philosophy.$

- 1. Give a general analysis of the modes of mental activity, and define each.
- 2. What is the intellect, and what are its sub-divisions !
- 3. What are the states of mind dependent on external objects called?
- 4. Through what organs are these impressions communicated to the mind?
- 5. State three proofs of the principle that our earliest knowledge is of external origin.
 - 6. What can you say of sensation?
- .. Define perception, and state what is involved in the process.
- 8. Illustrate the effects of habit upon taste. What can you say of habit as modified by particular callings and arts?
- 9. How do conceptions differ from ordinary sensations and perceptions? How from ideas of memory? Give instances of conceptions attended with momentary belief.
- 10. What can you say of attention? Of the degrees of attention? Of the dependence of memory upon it? Of the alleged inability to command the attention? Cause and Remedy?
- 11. Into what two classes are our mental affections divided?

- 12. What is the first characteristic of a simple idea? The second characteristic?
- 13. What is essential to a legitimate definition? Why will not this process apply to our simple thoughts and feelings?
- 14. What is the third characteristic of a simple men-

What does Locke mean by chimerical ideas?

- 15. What do you understand by the term analysis? What is the distinction between the analysis of material bodies and of complex thoughts?
- 16. Define abstraction. What is the distinctive mark of particular abstract ideas?

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Examination Papers.

GEOMETRY

GEOMETRY

- 1. Name the Geometrical magnitudes. What is the difference between equal magnitudes and equivalent magnitudes?
- 2. How does the area of a parallelogram differ from its perimeter?

Define line, surface and volume.

- 3. When is a proportion taken inversely? When is a proportion taken alternately? In what three cases are triangles equal? In what three cases are triangles similar?
- 1. To what is the sum of all the angles of a triangle equal? Of a parallelogram? Of the interior angles of a polygon?

What is the measure of a triangle? Of a trapezoid?

5. To what is an angle formed by a tangent and a chord equal?

What is the measure of an angle at the center of a circle?

What is the secant of a circle?

6. Demonstrate the following propositions:

The square described on the hypotenuse of any right angled triangle is equivalent to the sum of the squares described on the other two sides.

Any radius perpendicular to a chord bisects the chord, and also the arc of the chord.

7. To what is the square described on the difference of two lines equivalent?

To what is the difference of the squares described on any two lines equivalent?

How many points may two lines have in common?

5. Demonstrate the following theorem:

In any obtuse angled triangle the square on the side opposite the obtuse angle is greater than the sum of the squares on the other two sides by twice the rectangle contained by either side about the obtuse angle, and the side produced to meet the perpendicular drawn from the vertex of the opposite angle.

- 9. If a line is perpendicular at the center of a chord, through what other points will it pass?
- 10. To what is the exterior angle of a triangle equal?

 What is the measure of an angle at the circumference of a circle?

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Examination Papers.

Natural Philosophy

Natural Philosophy.

- 1-3. Define the following terms: Body, Atom, Molecule.
- 4-6. Define the following properties of matter: Magnitude, Impenetrability, Inertia.
- 7-10. Define cohesive and adhesive attraction, and give an example of each.
- 11. What is the great law of the attraction of gravi-
- 12. How does weight vary as we ascend from the earth's surface?
- 13. Why will a body have no weight at the center of the earth?
- 14-15. What is meant by saying that the specific gravity of gold is 19.360; and that of carbonic acid gas is 1520?
- 16-19. Name and describe the three conditions of equilibrium.
- 20-21. State the law for reflected motion and illustrate the same by a diagram.
 - 22. What is compound motion?
 - 23. Draw a diagram of the lever of the second class.
- 24. To what is the pressure of a column of liquid proportional?
- 25-26. When will a liquid be elevated and when depressed in a capillary tube?

- 27. What is the science of pneumatics?
- 28. How is the pressure of aëriform substances exerted?
- 29. For what purpose is the barometer used?
- 30. What is the Torricellian vacuum !

PROBLEMS.

- 1. A body weighs 8000 pounds upon the earth's surface; how far from the earth's center would its weight be two pounds?
- 2. A body weighed in air 40 pounds, and in water 35 pounds; what is its specific gravity?
- 3. What will be the weight of cubic foot of gold whose specific gravity is 19,360 ?
- 4-6. A leaden hall fell from a height to the surface of the earth in five seconds of time; find the entire distance it fell; the distance it fell the last second of its descent, and the velocity with which it struck the earth?
- 7. If the length of a pendulum to vibrate seconds, at Washington is 39.101 inches, how long must one be to vibrate once in five seconds of time at the same place?
- 8. What must be the horse power of a steam engine to lift from the bottom of a mine 80 feet deep 2,640,000 pound of coal in one minute of time?
- 9. A power of 100 pounds acts on a wheel 10 feet in diameter; what weight suspended from a rope winding round an axle 1 foot in diameter will balance this power?
- 10. A body is acted upon by two forces; one tending in a northerly direction at the rate of one mile per hour, and the other in an easterly direction at the rate of two miles per hour. Draw a diagram illustrating the position of the body at the end of one hour.

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Examination Papers.

German Grammar

GERMAN GRAMMAR.

- 1.-Write out six German double gender nouns, and give their definitions.
 - 2.—Give the declension of the definite article in full.
 - 3.-How are the two modes of Address used in German?
- 4.—If several proper nouns referring to one and the same person, stand together, which is inflected?
- 5.—How may the former and the latter be rendered in German?
- 6.—How many parts of speech are there in German, and what are they called?
 - 8.-What substantives are masculine by signification.
- 9.—What substantives are feminine by signification and by termination?
 - 10 .- Give the prepositions governing the genitive,
 - 11.—The dative,
 - The accusative.
 - The dative or accusative.
 - 14.-What is an Umfout?
- 15.-When do adjectives remain unchanged, and when are they declined?
 - 16.—Render in German the phrase, What has become of?
 - 17.-Write out the conjugation of Haben in full.
 - 18.-How are Capital Letters used in German?

19.—Translate: The boys had had two dogs, but they have sold them.

20.—Translate: Be contented, and you will be happy.
21.—Translate: We do not expect you without money.

22 .- Translate: 3ch habe einen Bagen.

23 .- Du wirft im Laufe eines Jahres deutsch fonnen.

24.—Decline

a. Freundschaft,

b. Schicksal,

c. Wachsthum.

25.—Write out the names of the months and the days of the week, in German.

ROCHESTER

FREE ACADEMY

Examination Papers.

LATIN GRAMMAR.

LATIN GRAMMAR.

- 1.—What do the case endings of Latin nouns denote? How expressed in English?
- 2.—Define inflection. As applied to the different parts of speech, what terms are used?
- 3.—Taking a comparative view of all the declensions, what uniformity of terminations is observed?
- 4.—What is the root of aper; bellum; pletas; bos; conjux?
- 5.—Divide and accent: lucus; homines; giving reason for both processes.
- 6.—Derive English words from: fluctus; iter; nox; carcer.
- 7.—Give the endings and gender of Latin nouns, in the order of declension.
 - 8.—Decline:—tribus; filia; flos; deus.
- 9.—How many declensions of adjectives? How named? Why?
 - 10.—Decline:—alius; plus; altior.
 - 11.—Compare:—arctus; malus; magnus.
- 12.—Which parts of the verb are taken to represent the conjugation in the active voice? Why? In the passive voice? Why?
- 13.—Give the personal terminations of the verb in both voices.

- 14.—How are the second and third roots formed in each of the conjugations?
- 15.—Why do the parts of the 2d root active come under the 3d root passive?
- 16.- Write the terminations of the Imperative in the four conjugations, active voice.
 - 17.-Inflect the Ind. Fut. of amo in both voices.
 - 18.-Inflect the Sub. Pres. of moneo, in both voices.
- 19.-Write the Inf. mood of rego, in both voices and tenses.
 - 20.-Give the participles of audio, in both voices.
- 21.—To what class of verbs belongs miseret; misereor? Define.
 - 22.-Parse:-ego scribo; manus laborarent.
 - 23.—Translate :--

Celeberrima res; difficili tempore; amicorum fidorum.

24.—Translate:—

A cheerful mind; in a healthy place; of all men.

25.—Construct a Latin sentence containing a verb, a noun, an adjective and a pronoun.

ROCHESTER

FREE ACADEMY

Examination Papers.

CÆSAR.

I.—Ubi ea dies, quam constituerat cum legatis, venit, et legati ad eum reverterunt, negat se more et exemplo populi Romani posse iter ulli per provinciam dare et, si vim facere conentur, prohibiturum ostendit. Helvetii, ea spe dejecti, navibus junctis, ratibusque compluribus factis, alii vadis Rhodani, qua minima altitudo fluminis erat, nonnunquam interdiu, saepius noctu, si perrumpere possent, conati, operis munitione et militum concursu et telis repulsi, hoc conatu destiterunt.

In what tense is constituerat? Give the principal parts of reverterunt. In what mood and tense is prohibiturum? Helvetii is the subject of what verb? Parse conatu.

II.—Ibi Centrones et Graioceli et Caturiges, locis superioribus occupatis, itinere exercitum prohibere conantur. Compluribus his proeliis pulsis, ab Ocelo, quod est citerioris provinciae extrenum. in fines Vocontiorum ulterioris provinciae die septimo pervenit: inde in Allobrogum fines, ab Allobrogibus in Segusianos exercitumducit.

In what construction is locis occupates? Parse itinerr. With what nonn understood does extremum agree? Compare the last two adjectives.

III.—Ita sive casu sive consilio deorum immortalium, quae pars civitatis Helvetiae insignem calamitatem populo Romano intulerat, ca princeps poenas persolvit. Qua in re Caesar non solum publicas, sed etiam privatus in-

jurías ultus est, quod ejus soceri L. Pisonis avum, L. Pisonem legatum, Tigurini eodem proelio, quo Cassium, interfecerant.

Govern populo. Give the principal parts of intulerat. What is the subject of persolvit? Give the principal parts of ultus est. Parse avum.

IV —Quod sua victoria tam insolenter gloriarentur quodque tam diu se impune injurias tulisse admirarentur, eodem pertinere; consuêsse enim deos immortales, quo gravius homines ex commutatione rerum doleant, quos pro scelere eorum ulcisci velint, his secundiores interdum res et diuturniorem impunitatem concedere.

Give the full form of consuésse and explain the construction. Parse doleant. Govern quos. Parse concédere. Give English derivatives from any of its roots.

V.—Postero die castra ex eo loco movent: idem facit Caesar; equitatumque omnem, ad numerum quattuor milium, quem ex omni provincia et Aequis atque eorum sociis coactum habebat, praemittit, qui videant, quas in partes hostes iter faciant. Qui cupidius novissimum agmen insecuti alieno loco cum equitatu Helvitiorum proelium committunt; et pauci de nostris cadunt.

Govern equitatum. Parse faciant. Parse novissimum. Helvetiorum limits what word? With word understood does pauci agree?

FREE ACADEMY

CICERO.

CICERO.

1. Give a brief account of the state of affairs that led to the delivery of the oration *Pro Lege Manilia*, stating also Cicero's age and the office he held at that time.

Translate:--

- 2. Mithridates autem omne reliquum tempus non ad oblivionem veteris belli, sed ad comparationem novi contulit; qui posteaquam maximas ædificasset ornassetque classes, exercitusque permagnos, quibuscumque ex gentibus potnisset, comparasset, et se Bosporanis, finitimis suis, bellum inferre simularet, usque in Hispaniam legatos ac litteras misit ad eos duces, quibuscum tum bellum gerebamus, ut, quum duobus in locis disjunctissimis maximeque diversis uno consilio a binis hostium copiis bellum terra marique gereretur, vos ancipiti contentione districti de imperio dimicaretis.
- 3. Ac ne illud quidem vobis negligendum est, quod mihi ego extremum proposueram, quum essem de belli genere dicturus, quod ad multorum bona civium Romanorum pertinet; quorum vobis pro vestra sapientia, Quirites, habenda est ratio diligenter. Nam et publicani, homines honestissimi atque ornatissimi, suas rationes et copias in illam provinciam contulerunt; quorum ipsorum per se res et fortunae vobis curæ esse debent. Etenim, si vectigalia nervos esse rei publicae semper duximus, eum certe ordinem, qui exercet illa, firmamentum ceterorum ordinum recte esse dicemus.

- 4. Jam vero virtuti Cn. Pompeii quae potest oratio par inveniri? quid est, quod quisquam aut illo dignum, aut vobis novum, aut cuiquam inauditum, possit affere? Neque enim illae sunt solae virtutes imperatoriae, quae vulgo existimantur, labor in negotiis, fortitudo in periculis, industria in agendo, celeritas in conficiendo, consilium in providendo; quae tanta sunt in hoc uno, quanta in omnibus reliquis imperatoribus, quos aut vidimus aut andivimus, non fuernnt.
- 5. Hie miramur hune hominem tantum excellere ceteris, cujus legiones sic in Aseam pervenerint, ut non modo manus tanti exercitus, sed ne vestigium quidem cuiquam pacato nocuisse dicatur? Jam vero quemadmodum milites hibernent, quotidie sermones ac literae perferuntur: non modo, ut sumptum faciat in militem, nemini vis affertur, sed ne cupienti quidem cuiquam permittitur. Hiemis enim, non avaritiae perfugium majores nostri in sociorum atque amicorum tectis esse voluerunt.
- 6. Quamobrem, quidquid in hoc causa mihi susceptum est, Quirites, id omne ego me rei publicae cansa suscepisse confirmo; tantumque abest, ut aliquam mini bonam gratiam quaesisse videar, ut multas me etiam simultates partim obscuras, partim apertas intelligam mihi non necessarias, vobis non inutiles suscepisse. Sed ego me hoc honore praeditum, tantis vestris beneficiis affectum, statui, Quirites, vestram voluntatem et rei publicae dignitatem et salutem provinciarum atque sociorum meis omnibus commodis et rationibus praeferre oportere.
- 7. Tell me the truth. Ariovistus sends ambassadors to Cæsar. To live according to nature is the chief good. An incredible multitude came together into the Capitol. He terminated a very great war in Africa. For which reason it seems to me the more unbecoming that opposition has been made hitherto, to Gabinius, shall I say, or to Pompey—that which is nearer the truth—that Aulus Gabrinus should not be appointed lieutenant to Cneius Pompey who is earnestly seeking and demanding [this].

- 8. What term is employed in your Latin Grammar to designate the constructions negligendum est and dicturus essem (in 3), and what is denoted by each?
 - 9. Govern virtuti, illo, vobis and cuiquam, in 4.
- 10. What word is antithetic to manus, in 5, and by what means is that word especially marked as emphatic? In what mood is hibernent, and why?
- 11. Write out the parts of susceptum, quaesisse, contulisse, abest and tollere.
- 12. Point out the Latin and Greek words in the following sentence by writing the root and étymon of each:
- "Uniformity of law is as baseless as geology, if the uniform types of plants luxuriantly flourishing in all latitudes, prior to the completion of the land and culmination of vegetation, do not indicate a climate differing exceedingly in the the uniformity of light and heat from the climate of to day."

ROCHESTER FREE ACADEMY

Examination Papers.

VIRGIL.

VIRGIL

- 1. When and where was Virgil born !
- 2. Older or younger than { Augustus, } how much?
- 3. Of illustrious or obscure parentage?
- 4. Where educated?
- 5. Health?
- 6. What foreign country did he visit?
- 7. Where did he die, and how happened he to be there?
- 8. Explain the title of his poem which you have been reading.
 - 9. Is Æneas a mythical or a historical character?
 - 10. How long was Virgil composing this poem?
- 11. Which book of the Æneid is chronologically the first?
- 12. What is gained by such a change of the chronological order? What poem in our own language can you mention that has a similar transposition of the order of events?
 - 13. Define the term, epic poem.
- 14. What are the first seven lines called, and what do they contain?
- 15. Give the reason for placing arma and virum where they are.
- 16. If a poet would say, "Arms, and the man I sing," how would prose give us the statement?
- 17. Fundamental difference between ancient and modern metrical composition?

18. Translate:

Necdum ètiam causæ irarum, sævique dolores Exciderant animo. Manet altå mente repôstum Judicium Paridis, spretæque injuria formæ, Et genus invium, et rapti Ganymedis honores. His accensa super, jactatos æquore toto Troas, relliquias Danatm atque immitis Achillei, Arcebat longè Latio: muliosque per annes Errabant, acti fatis, maria omnia circùm. Tantæ molis erat Romanam condere gentem.

19. Translate:

Postquam exempta fames epulis, mensæque remotæ, Amissos longo socios sermone requirunt, Spenque metumque inter dubii: seu vivere credant, Sive extrema pati, nec jam exandire vocatos. Præcipue pius Æneas, nunc acris Orontei, Nunc Amyci casum gemit, et crudelia secum Fata Lyci, fortemque Gyan, fortemque Cloanthum.

20. Translate:

At domus interior regali splendida luxu Instruitur, mediisque parant convivia tectis. Arte laboratæ vestes, ostroque superbo: Ingens argentum mensis, cœlataque in auro Fortia facta patrum, series longissima rerum Per tot ducta viros antiquæ ab origine gentis.

21. Translate:

Jam Pater Æneas, et jam Trojana juventus
Conveniunt, stratoque super discumbitur ostro.
Dant famuli manibus lymphas, Cereremque, canistris
Expediunt, tonsisque ferunt mantilia villis
Quinquaginta intus famulæ, quibus ordine longo
Cura penum struere, et flammis adolere Penates:
Centum aliæ, totidemque pares ætate ministri,
Qui dapibus mensas onerent, et pocula ponant.

- 22. Scan the first three verses of 18, and point out an ecthlipsis and a synalæpha in the same.
- 23. Govern animo, mente, aquore, Latio and molis, and give the subject of erat.
- 24. What two parts of speech does postquam in 19 represent, what does it connect, and what two words does it modify?
- 25. Should the word inflammation be spelled with two m's or with one? Why? Derive and give the etymon of abscission, the reason for its having so many letters in it, when so few would represent its sounds. Give some familiar word that contains the same root.
 - 26. "Of what use is it to study Latin?"

ROCHESTER

FREE ACADEMY

Framination Papers.

GREEK LESSONS.

November, 1875.

GREEK LESSONS.

1.-Translate:

Πλοΐα πέμπουσιν. Κύρος ἐξελαύνει. Ἐντεῦθεν ἐξελαύνει σταθμοὺς πέντε. Αργύμιον ἔχομεν. Πλοΐα γὰρ οὐχ ἔχομεν. Κλέαρχε καὶ Πρόξενε "Ηλιος ἀνίσχει. Ἐξαίφνης ἀχούομεν θομύβου Αργύριον μὲν οὐχ ἔχω. Απαγγέλλετε Αριαίφ. Αναβαίνει Χειρίσοφος.

- 2.—Κύρον δὲ μεταπέμπεται. Πείθεται. Οὐ θέλετε πείθεσθαι οὐδὲ ἔπεσθαι. Εἰ δὲ χρήζεις, πορεύου. Μή, πρὸς θεῶν, μαινώμεθα. Μή οὖν οἴου. Φαινέσθω. Σώζοισθέ τε ἀσφαλῶς. Νῦν δὲ ἀπέρχομαι. 'Εξέρχονται δη σὺν δορατίοις και ἀσκοῖς. Οὐκ αἰσχύνεσθε οὕτε θεοὺς οὕτ' ἀνθρώπους;
- 3.— 0: στρατιώται φέρουσι λίθους. Η στρατιά οδτω γιγνώσκει. Τετάρτη δ' ήμέρη καταβαίνουσιν είς τὸ πεδίον-Συγκλείουσι τὰς πύλας, καὶ τὸν μογλὸν ἐμβάλλουσιν. Κοινῆς σωτηρίας δεόμεθα. ' λλλά φυγή λείπουσι τὸ χωρίον.
- 4.—΄ Ο δεσρότης έχάστης τῆς οἰχίας. Περὶ δὲ τοῦ χαλῶς ἀποθνήσχειν ἀγωνίζονται. Διὰ μέσου θὲ τοῦ παραδείσου. Ἐπὶ τὴν ἡμετέμαν χώμαν ἔμχεσθε. Οἱ τοῦ ἐμοῦ ἀδελφοῦ φίλοι. 'Απ' ἐχείνης τῆς ἡμέρας. Παύομαι ἐχείνης τῆς διανοίας. Ἐχ τῆσδε τῆς χώρας.
- 5.— Αρχατόρας ο Αργεῖος. Οι άλλοι στρατηγοί. Οι δ' άλλοι στρατηγοί. αίουσι καὶ βάλλουσιν. Οι πολέμιοι επι-

φαίνονται εν τψ πεδίφ. Τον τε Κλεάρετον αποχτείνουσι χαί τῶν άλλων συχνούς. ΄Ο ετερος τον ετερον παίει. Έχχλινουσιν οι βάρβαροι, χαι φεύγουσιν.

- 6.—Cyrus sends Lycius. Chirisophus apprehends Phalinus. Lycius and Phalinus plot against Callimachus. Let us bring stones, and not delay. Thereupon [now] Cyrus wonders. Let the Lacedæmonians rule. O Cyrus, they wonder. I do not wonder, [O] Cyrus.
- 7.—Cyrus sends for Ctesias. Orontes is arrested. Cyrus advances five parasangs. Agasais of Stymphâlus, a captain, comes up and arrests five robbers. Thereupon thirty robbers approach with javelins and leathern bags. A robber wounds Agasias. It is said. Do not wonder, Agasias. Orontes, are you not ashamed before either men or gods?
- M.—The robbers bring stones. The soldiers so judge. And on the fourth day, Gyrus with two thousand heavy-armed troups descends into the plain. On a sudden Ly cius closes the gates, and inserts a strong bar. But let us not leave the place by flight. The soldiers are in great need of a common deliverance.
- 9.—Suddenly the rest of the enemy appear upon the plain beside the sea. The one traduces the other. The barbarians slay both Clearchus and many of the others. The rest of the soldiers give way and flee.
- 10. Come into the center of the plain. For they have our property. On the next day Cyrus sends for the Arcadian infantry. They wonder at the fate of Clearchus. One teaches one thing, and another another. The physician has come opportunely. The soldiers take supplies. Do not wonder at our affairs. They die in the midst of the way homeward.

- 11.-Write the verbal terminations of the present optative, active and passive.
 - 12.—Give the affixes of the second declension of nouns.
- 13.—Explain the difference in signification and form, between the imperfect and second agrist tenses.
- 14.— Derive English words (giving their meaning) from *Αυθρωπος, γράφω, ήμέρα άθελφός and τη.
- 15.— Derive and define syllable, stenography, isosceles, heliotrope, archon and hippodrome.

FREE ACADEMY Framination Papers.

ANABASIS.

November, 1875.

ANABASIS.

- 1.—Who was Xenophon, about what time did he live, what do you know of his ability as a writer, and in what other department did he distinguish himself?
- 2.—Who was the Cyrus described in the Anabasis, what did he attempt, and with what result?
- 3.—In what empire was Babylon, and in what direction from Greece?
- 4.—What plan did Cyrus pursue in assembling his forces, and at what point did they gather to begin their march?
 - 5.- Describe the so called Gates of Syria.
 - 6.-Translate:-
- Αλλο δὲ στράτευμα αὐτῷ συνελέγετο ἐν Χερρονήσῳ τῷ καταντιπέρας 'Αδύδου τόνδε τὸν τρόπου. Κλέαρχος Λακεδαιμόνοις φυγὰτ ἤν τούτῳ συγγενόμενος ὁ Κῦρος, ἢγάσθη, τε αὐτὸν, καὶ δίδωσιν αὐτῷ μυρίους δαρεικούς. 'Ο δὲ λαβών τὸ χρυσίον, στράτευμα συνέλεξεν ἀπὸ τούτων τῶν χρημάτων, καὶ ἐπολέμει, ἐκ Χερρονήσου ὁρμώμενος, τοῖς Θραξὲ τοῖς ὑπὲρ 'Ελλήσποντον οἰκοῦσι, καὶ ὡφέλει τοὺς "Ελληνας ' ὥστε καὶ χρήματα συνεβάλλοντο αὐτῷ εἰς τὴν τροφὴν τῶν στρατιωτῶν αί 'Ελλησποντιακαὶ πόλεις έκοῦσαι. Τοῦτο ὅ αὐοῦτω τρεφόμενον ἐλάνθανεν αὐτῷ τὸ στράτευμα.

- 7.—Μετά δὲ ταῦτα ἐπεί συνεγένοντο ἀλλήλοις, Συέννεσις μὲν ἔδωχε Κύρφ χρήματα πολλὰ εἰς τὴν στρατιὰν, Κῦρος δ' ἐχείνφ δῶρα, ἀ νομίζεται παρὰ βασιλεῖ τίμια, ἵππον χρυσογάλινον καὶ στρεπτόν χρυσοῦν καὶ ψέλλια καὶ ἀκινάκην χρυσοῦν καὶ στολὴν Περσικήν, καὶ τὴν χώραν μηχέτι ἀφαρπάζεσθαι τὰ ἀὲ ἡρπασηένα ἀνδράποδα, ἡν που ἐντυγχάνωσιν, ἀπολαμβάνειν.
- 8.—Μετά τούτον ἄλλος ἀνέστη, ἐπιδειχνύς μὲν τήν εὐήθειαν τοῦ τὰ πλοῖα αἰτεῖν χελεύοντος, ἄσπερ πάλιν τὸν στόλον
 Κύρου μὴ ποιουμένου · ἐπιδειχνύς δὲ, "ὡς εὔηθες εἴη, ἡγεμόνα αἰτεῖν παρὰ τούτου, ῷ λυμαινόμεθα τὴν πρᾶξιν. Εἰ
 δὲ χαὶ τῷ ἡγεμόνι πιστεύσομεν, ῷ ἄν Κῦρος διδῷ, τί χωλύει
 καὶ τὰ ἄχρα ἡμῖν χελεύειν Κῦρον προχαταλαμβάνει»;
- 9.— Οἱ μὲν ὀὴ στρατιῶται, ἐν ἐλπίσι μεγάλαις ὅντες, εὕχοντο αὐτὸν εὐτυχῆσαι · Μένωνι ἀε καὶ ἀῶρα ἐλέγετο πέμψαι μεγαλοπρεπῶς. Ταῦτα ἀε ποιήσας ἀιέβαινε · συνείπετο ἀε καὶ τὸ ἀλλο στράτευμα αὐτῷ ἄπαν καὶ τῶν ἀιαδαινόντων τὸν ποταμὸν οὐδείς ἐδμέχθη ἀνωτέρω τῶν μαστῶν ὑπὸ τοῦ ποταμοῦ.
- 10.— Την δὲ τούτων τῶν σταθμῶν, οδς πάνυ μαχρούς ἤλαυνεν, ὁπότε ἢ πρὸς δόωρ βούλοιτο διατελέσαι ἢ πρὸς χιλόν. Καὶ δή ποτε στενοχωρίας καὶ πηλοῦ φανέντος ταῖς ἐμάξαις δυσπορεύτου, ἐπέστη ὁ Κῦρος σὺν τοῖς περὶ αὐτὸν ἀρίστοις καὶ εὐδαιμονεστάτοις, καὶ ἔταξε Γλοῦν καὶ Πίγρητα, λαβόντας τοῦ βαρβαρικοῦ στρατοῦ, συνεκβιβάζειν τὰς ὁμάξας.
- 11. He remained three days in Issus, the last inhabited city of Cilicia upon the sea-shore, a city large and prosperous. And here Pythagoras, the Lacedæmonian admiral, came to the aid of Cyrus with the ships from the Peloponnesus. With these triremes, five and twenty in number, Tamos besieges Miletus, and assists Cyrus in the war against Tissaphernes. Anaxibius was admiral over these ships. He anchored the vessel beside the camp. The vessel of Tamos lay at anchor in the harbor.

The two generals arrived in the ship, having been sent for by the klng.

- 12. Analyze ἀντιπαρεσκευάζετο, giving the meaning of each of its elements.
 - 13. Name all the objects of ἐδωκε in 7.
- 14. Give the gender, number, case and agreement of $\epsilon \delta \eta \theta \epsilon \zeta$ in 8.
- 15. Derive myriad, allotropic, lath, panther, and hydrogen, giving the etymon of each.

ROCHESTER FREE ACADEMY.

EXAMINATION PAPERS.

CEOLOGY.

February, 1876.

GEOLOGY.

- 1. What does the word geology signify?
- 2. What is an ore?
- 3. Give a description of the most common of the rock material?
 - 4. Give the chemical composition of calcite?
- 5. Where are the ingneous rocks of the earth's crust principally situated?
 - 6. Describe the manner of this formation ?
- 7. In what manner have the stratified rocks been formed ?
 - 8. What are metamorphic rocks?
- 9. How have the limestone rocks of the earth been principally formed ?
- 10. In what way have rivers aided in the formation of stratified rocks?
- 11. Describe the work performed by ice in rock making ?
 - 12. What are veins in rocks?
- 13-15. Describe the three ways in which mountains have been formed?
- 16. How do you account for the fact that many of the stratified rocks are un-conformable?

- 17-20. Name and define the sub-divisions of historical geology ?
- 21. What was the form of North America at the close of Archæn time?
- 22-23. What reasons have we for believing that animal and vegetable life may have existed during this time?
 - 24. What sub-kingdoms of animal life first appeared?
 - 25. In what form did vegetable life first appear?
- 26. In which geological age and where did vegetable life first manifest itself?
- 27. Give a description of the vertebrates that first appeared?
- 28. Give a description of the manner in which coal was formed?
- 29. What reason have we for believing that previous to Cenozoic time the climate was more uniform over the earth than it is at present?
 - 30. In what geological age did man first appear?
- 31. How do you account for the drift over the northern latitudes of America and Europe?
- 32. How do you account for the formation of terraces in many of the river valleys?
- 33. Give a reason for believing that geological time has been of great duration?