Vancouver High School

VANCOUVER, BRITISH COLUMBIA, CAN.

COURSE OF STUDY

FOR THE YEAR

1893~4

AND

CATALOGUE

FOR THE YEAR

1892~3

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BOARD OF SCHOOL TRUSTEES

VANCOUVER, B. C.

FACULTY OF INSTRUCTION

HIGH SCHOOL DEPARTMENT.

ALEXANDER ROBINSON, B. A. (Dal.), Principal—
       English Language and Literature.
JAMES C. SHAW, B. A., (Dal.), A. M. (Harv.)—
       Classics and Ancient History.
JOHN H. KERR, B. A., (Toronto)—
       Junior Mathematics and Commercial Branches.
GEORGE E. ROBINSON., B. A., (Dal.)—
       Senior Mathematics.
JOSEPH K. HENRY, B. A., (Dal.)—
       Junior Classics and English.

PUBLIC SCHOOL DEPARTMENT

(PREPARATORY.)

F. M. COWPERTHWAITE, B. A., (U. N. B.),   -   Principal Central School
R. SPARLING,   -   -   -   -   Principal East End School
T. A. McGARRIGLE, B. A., (U. N. B.),   .   Principal West End School
G. W. JAMIESON,   -   -   -   Principal Mount Pleasant School

VANCOUVER HIGH SCHOOL.

TIME OF SESSION.

There are two terms in the Academic year, commencing respectively on the second Monday in August and the first Monday in January after New Year's Day. The hours of teaching are from 9 a.m. to 12 m., and from 1 p.m. to 3.30 p.m., from April to October, inclusive ; and from 9.30 a.m. to 12 m., and from 1 p.m. to 3 p.m., from November to March, inclusive.

ADMISSION.

There are two Entrance Examinations in each year, in December and June, respectively. The Examinations are under the control of the Education Department of the Province. The following are the subjects of examination :—

1. *Spelling.*—To be able to spell correctly the ordinary words in the Fifth Reader and Spelling Book.

2. *Reading.*—To read correctly and intelligently any passage in the Fifth Reader.

3. *Writing.*—To write neatly and legibly.

4. *Arithmetic.*—To have a good general knowledge of numeration, notation, the four simple and compound rules, reduction, vulgar and decimal fractions, proportion, simple interest and percentage, compound interest and discount.

5. *Mental Arithmetic.*—To be able to solve, mentally, any ordinary problems.

6. *Grammar.*—To know the principal grammatical forms and definitions, and to be able to analyze and parse any ordinary sentence.

7. *Geography.*—To have a good knowledge of the earth's planetary relations, of the general principles of physical geography, and of the outlines of the maps of Europe, Asia, Africa, America, Oceania, and of the British Empire, and more particularly of that of the Dominion of Canada.

8. *English History.*—To know the different periods and outlines of English History.

9. *Canadian History.*—To have a knowledge of the outlines of Canadian History.

10. *Composition.*—To be able to write a letter correctly as to form and punctuation, and to write a brief composition on any simple subject.

11. *Anatomy, Physiology, and Hygiene.*—To have a general knowledge of the subject.

In order that a candidate may obtain admission to the High School, the aggregate of his marks must amount to at least 60 per cent. of the total marks assigned for all the subjects of examination, and at least 30 per cent. must be obtained in each subject. Candidates will not be admitted who fail to gain 50 per cent. on the grammar paper.

Candidates who have been unable to attend the regular entrance examination, may, on application to the Principal, obtain a special examination.

Teachers of the Public Schools, who have already obtained certificates by examination in the Province, may be admitted to the High School as pupils without being required to pass the usual entrance examination.

CLASSIFICATION.

There are five classes, designated " A," " B," " C," " D " and " E," respectively. All admissions to the High School are to the " E " or lowest class, unless the candidate can show his ability to enter a higher class. Promotion Examinations are held in December and June of each year.

COURSE OF STUDY.

CLASS " E."

1. *English Language:*—(*a*) Reading.—Sixth Reader; the principles of orthoepy and elocution, spelling, derivation of words, rendering of poetry into prose, and generally the formation of a good English style.

(*b*). Composition.—The structure of sentences and paragraphs, correction of errors, familiar and business letters, themes on familar subjects.

(*c*). Grammar.—Smith's English Grammar, analysis and parsing of passages from authors not prescribed.

2. *Geography.*—Particular geography of Europe. Elementary exercises on the use of the terrestrial globe.

3. *History.*—British and Canadian History.

4. *Book-keeping.*—Single entry Book-keeping, commercial forms.

5. *Mathematics :*— (*a*). — Written Arithmetic. — Percentage, simple and compound interest, discount, profit and loss, extraction of square and cube roots.

(*b*). Mental Arithmetic.

(*c*). Algebra.—Four fundamental rules, factoring, elementary formulæ.

(*d*). Geometry.—Euclid Book I., first twenty propositions, with deductions.

6. *Classics :*—Latin.—To the end of the Regular Verb.

CLASS " D."

1. *English Language.*—Extension of the course for class " E."

2. *Geography.*—Particular geography of Asia, with special reference to China, Japan and India. Further uses of terrestrial globe. Oral instruction in physical geography.

3. *History :*—(*a*). Canadian History completed.

(*b*) British History continued, with special reference to the history of the nineteenth century.

4. *Book-keeping.*—Double entry Book-keeping.

5. *Mathematics :*—(*a*). Written Arithmetic.—Stocks and shares, circulating decimals, miscellaneous problems.

(*b*). Mental Arithmetic.

(*c*). Algebra.—Factoring continued, finding the H. C. F. and the L. C. M., fractions, simple equations.

(*d*). Geometry.—Euclid Book I., completed and reviewed, with deductions.

6. *Classics :*—(*a*) Latin.—Pronoun and regular verb reviewed, irregular verb, elementary Latin construction.

(*b*). Greek.—Declension of the noun and adjective.

CLASS "C."

1. *English Language and Literature.*—Extension of the course for class "D." Increased attention given to the derivation of words. Critical reading of an English classic.

2. *Geography.*—Particular geography of Oceania, with special reference to Australia. Increased attention to physical geography and the uses of the terrestrial globe.

3. *History :*—(*a*). British History.—Critical study of Stuart period.

(*b*). Outlines of Ancient history, with special reference to the history of Rome.

4. *Science.*—Elements of Botany.

5. *Mathematics :*—(*a*). Written Arithmetic.—The Metric system, alligation, miscellaneous problems.

(*b*). Mental Arithmetic.

(*c*). Algebra.—Simple equation continued, extraction of square and cube roots, introduction to quadratics.

(*d*). Geometry.—Euclid Book II., treated according to both the diagrammatic and line methods, algebraical equivalents, deductions.

(*e*). Mensuration.—Areas of surfaces.

6. *Classics :*—(a). Latin.—Latin grammar completed and reviewed, introduction to Latin prose composition, Caesar, *De Bello Gallico*, Book I.

(*b*). Greek.—To the end of the regular verb.

CLASS "B."

1. *English Language and Literature.*—Extension of the course for class "C." Critical reading of an English classic, history of English literature, rhetoric.

2. *Geography.*—The subject completed and reviewed.

3. *History:*—(*a*). British History.—Critical study of the Guelph period.

(*b*). Outlines of Ancient History, with special reference to the history of Greece.

4. *Science:*—(*a*). Botany.—The subject continued.

(*b*). Chemistry.—Elementary inorganic chemistry.

5. *Mathematics:*—(*a*). Written Arithmetic—The subject completed and reviewed.

(*b*). Mental Arithmetic—The subject completed.

(*c*). Algebra—Quadratics completed, indices and surds, the roots of equations, indeterminate equations, introduction to the binominal theorem.

(*d*). Geometry. —Euclid, Books III. and IV., with deductions.

(*e*). Mensuration.—Volumes of solids.

(*f*). Trigonometry—To the end of the area of triangles.

(*g*). Natural Philosophy.—Peck's Ganot ; Statics.

6. *Classics:*—(*a*). Latin—Latin prose composition continued, Caesar, *De Bello Gallico*, Book II., Vergil, *Aeneid*, Book I.

(*b*). Greek.—Greek grammar completed, introduction to Greek prose composition, Xenophon, *Anabasis*, Book I.

CLASS "A."

1. *English Language and Literature:*—Extension of the course for class "B." Critical reading of an English classic. History of English literature and rhetoric completed.

2. *History:*—(*a*). British History—Critical study of the remaining portion.

(*b*.) Ancient History completed.

3. *Science:*—Inorganic Chemistry completed.

4. *Mathematics:*—(*a*). Algebra—The subject completed and reviewed.

(*b*). Geometry.—Definitions of Book V., Book VI., with deductions.

(*c*). Mensuration.—The subject completed and reviewed.

(*d*). Trigonometry.—The subject completed and reviewed.

(*e*). Natural Philosophy.—Peck's Ganot completed, Dynamics and Hydrostatics.

5. *Classics:*—(*a*). Latin.—Latin prose composition continued, Vergil, *Aeneid*, Book II., Horace, *Odes*, Books I. and III.

(*b*) Greek.—Greek prose composition continued, Xenophon, *Anabasis*, Book II., Homer, *Iliad*, Books I. and II.

NOTE.—1. The courses given in classes "C," "B" and "A" are partially adapted to candidates for Third, Second and First Class Certificates, respectively. During the Winter session the Principal will conduct a class in Education after the regular school hours.

2. The courses given in classes "B" and "A" are also intended to prepare candidates for first and second year college matriculation.

MEDALS AND PRIZES.

THE COPE GOLD MEDAL, which is offered by His Worship, Mayor Cope, will be awarded to the student of class "A" standing highest in the department of Classics, the winners of other medals being excluded.

THE OPPENHEIMER GOLD MEDAL, which is offered by ex-Mayor Oppenheimer, will be awarded to the student of class "A" standing highest in the department of Mathematics, the winners of other medals being excluded.

THE ANDERSON GOLD MEDAL, which is offered by Ald. Anderson, will be awarded to the student of class "A" standing highest in general proficiency, the winners of other medals being excluded.

Book Prizes will be awarded to the students standing highest in the departments of Classics, Mathematics, English and Science throughout the various classes.

NOTE.—1. The Medals and Prizes will be awarded at the close of the Academic year.

2. The faculty of Instruction reserves to itself the right of witholding Medals and Prizes in cases in which sufficient merit is not shown.

RESIDENCE.

The Vancouver High School is not a boarding school. Students from outside districts may, on application to the Secretary of the School Board or to the Principal, obtain a list of suitable boarding houses. Such students are required to report their places of residence to the Principal.

FEES.

No fee is exacted from any student either from the City or elsewhere.

LIBRARY.

The nucleus of a Library has been secured through the liberality of the secretary, A. H. B. Macgowan. Additions to this gentleman's contributions are confidently expected.

LIST OF STUDENTS

n attendance at the Vancouver High School for the Academic year 1892-3.

1	*Anderson, Guy	Vancouver City
2	Bennett, Ellen	" "
3	Bodwell, Charlotte	Lulu Island
4	Bodwell, Louise	" "
5	*Cameron, Florence	Vancouver City
6	DePencier, Percy	" "
7	*Edgett, Louise	" "
8	Frank, Evelyn	" "
9	Hall, Harvey	" "
10	Hay, Alice	" "
11	Hunter, Douglas	" "
12	Lang, Bella	" "
13	MacGowan, Guy	" "
14	MacLaren, Lulu	" "
15	Moscrop, Susan	" "
16	*Moss, May	" "
17	Shook, Frank	" "
18	Skinner, May	North West Territory
19	*Smith, Mabel	Vancouver City
20	Spillman, Maggie	" "
21	Ward, Mary	" "

*Promoted from class "B" at Christmas Examination.

CLASS "B."

22	Agnew, Marguerite	Vancouver City
23	Agnew, Sarah	" "
24	Barnes, Lena	" "
25	†‡Bovyer, George	" "
26	†Brown, William	" "
27	†Carter Elizabeth	" "
28	†‡DePencier, Theodore	" "
29	Doherty, Maggie	" "
30	†‡ Eggert, Charles	" "
31	Fraser, James	" "
32	‡Fraser, Mabel	" "
33	†George, Elizabeth	" "
34	†Hatch, Sarah	" "
35	†‡Lawson, Winnifred	North Arm
36	†Macgowan, Max	Vancouver City
37	‡McIntosh, Fannie	" "
38	‡McKinnon, Mary	" "
39	MacLaren, Jean	" "
40	‡McLean, Isabel	" "

41 †‡McTaggart, Henry...................................Vancouver City
42 Mitchell, Jennie...................................... " "
43 †‡Orrell, Henry...................................... " "
44 Rhodes, Amy... " "
45 †Short, William...................................... " "
46 ‡Smith, Alice.......................................Moodyville
47 Smith, Katharine..................................... "
48 †‡Southcott, Florence..........................Vancouver City
49 †Spillman Elizabeth................................... " "
50 Stitt, Una.. " "
51 Truswell, Sarah..................................... " "

‡Promoted from class "C" at Christmas examination.
†Promoted to class "B" (re-organized), at Mid-summer examination.

CLASS "C."

52 Alcock, Ada...Vancouver City
53 ‡Barton, Annie...................................... " "
54 ‡Blair, Mabel.. " "
55 Breeze, Ethel....................................... " "
56 ‡Brown, Bessie....................................... " "
57 ‡Brown, Royal.. " "
58 Carter, Ethel....................................... " "
59 ‡Casselman, Clifford................................. " "
60 ‡Collins, Elizabeth.................................. " "
61 Copp, Walter.. " "
62 Daniels, Eliza.......................................North Arm
63 ‡Dodd, Leonard.......................................Yale
64 ‡Dougall, Arthur....................................Vancouver City
65 ‡Eldridge, Julia..................................... " "
66 Foreman, Alfred...................................... " "
67 ‡Foreman, William.................................... " "
68 ‡Frank, Annie.. " "
69 ‡Fraser, William..................................... " "
70 Grant, Jane.. " "
71 ‡Henderson, Arthur..................................Chilliwhack
72 ‡Hill, Maggie.......................................Vancouver City
73 ‡Johnson, Jennie..................................... " "
74 ‡Johnston, Jean...................................... " "
75 Macgowan, Roy....................................... " "
76 Mason, Percy... " "
77 Miles, Katharine..................................... " "
78 McAlpine, Florence................................... " "
79 McNutt, Eressa....................................... " "
80 ‡McQueen, Annie....................................... " "
81 ‡Moss, Laura... " "
82 Nicholson, Malcolm................................... " "

83	Ogilvie, Ethel	Vancouver City
84	Oppenheimer, Rena	" "
85	‡Parker, Edith	" "
86	‡Reid, Jemima	" "
87	Rennison, Winfred	Comox
88	Scurry, Albert	Vancouver City
89	Scurry, Harvey	" "
90	Stark, Mary	" "
91	Stitt, Freda	" "
92	Urquhart, Alice	" "
93	‡Whitworth, Gladys	" "
94	Whitely, May	" "
95	‡Wood, Alma	" "
96	Wood, Chester	" "

‡Promoted to class " C " (re-organized) at Mid-summer examination.

TEACHERS' EXAMINATIONS.

The following students of the Vancouver High School were successful in obtaining certificates at the last Teachers' Examination, viz. :—

(Names are in order of merit.)

SECOND CLASS—GRADE A.

Bodwell, Charlotte
Lang, Isabella
Bennett, Ellen C.
Hunter, Douglas
Stitt, Una
Hay, Alice
Moss, May

SECOND CLASS—GRADE B

Truswell, Sarah
Rhodes, Amy
Smith, Katharine

THIRD CLASS—GRADE B.

Smith, Mabel
Shook, Frank
Edgett, Louise
Spillman, Maggie
Ward, Mary
Frank, Evelyn
Agnew, Marguerite

PROMOTION EXAMINATIONS.

LATIN.

Examiner .... JAMES C. SHAW, A. M.

CLASS "C."

Time   -   -   2½ hours.

I. Decline in the singular, *meus filius, vetus vinum ;* in the plural, *longum iter, idem bos.*

II. State what is peculiar about the following words : *Senex, vulgus, acus, vis.*

III. (*a*) The following words may be distinguished by the quantity of the vowels : *os, idem, hoc, ea.*
   (*b*) Mark the quantities of the final vowels in *bonis, legis, aetate, re, mi'lia, es, sis, sit, te, id.*

IV. Distinguish *vir* and *homo, quinque* and *quintus, esto* and *erit in* with the *Abl.* and with the *Accus.*

V. Write in the other degree of comparison the forms corresponding to *acre, gracilibus, benevolo, parvus, dives, noxius.*

VI. Illustrate by English sentences the correct use of *is, se, hic, iste, ille, ipse, qui* and *quis.*

VII. Give all the second persons singular of *prosum.*

VIII. Give English Words etymologically related to the following : *Melius, puer, avis, verus, radix, salus, cor, nox.*

IX. Translate :
   (*a*) Alius vires, alius divitiae sunt magnae.
   (*b*) Legionibus Romanis duces praefuerunt fortissimi.
   (*c*) The queen's daughter was very like her mother.
   (*d*) There were in the city that night a thousand horse-soldiers and six thousand foot-soldiers.
   (*e*) Very few survived the one battle, and fewer the other.
   (*f*) All the king's forces were in one camp at this time.

CLASS "B."

Time   -   -   2½ hours.

I. Decline : *meus filius, acris vis, idem bos.*

II. Classify substantives of the Third Declension according to stem-endings. How may the so-called Fourth Declension be regarded ?

III. With what are pronouns analagous in declension? Are all kinds declined alike? Certain pronominal forms are distinguishable by the quantity of vowels in them.

IV. Describe and illustrate fully the formation of the Perfect Tenses of the Latin verb.

V. " Deponent verbs have a Passive form, but an Active meaning." This definition is defective.

VI. Write all the second persons singular of *capio*.

VII. Give the respective uses of the Ablative with and without *in*, *ab*, and *cum*

VIII. Form, giving meaning and genders, Latin nouns from the following: *multus, scribo, oro, vorax, vinco.*

IX. Translate into Latin :
    (*a*) There is no doubt that one was a Roman, another a Greek, another a Persian.
    (*b*) Take care to obey the laws of your country and to side with the good.
    (*c*) There were in the city that night a thousand horse-soldiers and six thousand foot-soldiers.
    (*d*) All the king's forces were in one camp at this time.

CLASS " A."

Time - - 2½ hours.

I. Translate :
    (*a*) Ea res ut Helvetiis enunciata, Orgetorigem ex vinculis causam dicere *coegerunt*. Damnatum poenam *sequi* oportebat ut igni cremaretur. Die constituta Orgetorix ad judicium omnem suam familiam et omnes clientes obaeratosque conduxit. Per eos se *eripuit*.
    (*b*) His quum persuadere non posset legatos ad Dumnorigem mittunt ut, eo deprecatore, impetrarent. Dumnorix apud Sequanos plurimum poterat et Helvetiis erat amicus, quod Orgetorigis filiam in matrimonium duxerat. Itaque rem *suscipit*, et a Sequanis impetrat ut, per fines suos, Helvetios ire *patiantur*.

II. Parse the verbs italicised, giving their principal parts.

III. Comment upon the sequence of tenses in the first sentence of extract, (*b*), and discuss the subject fully.

IV. State what is peculiar in the following words : *virus, senex, solus, benevolus, facio.*

V. The following words may be distinguished by the quantity of the vowels : *os, idem, hoc, duces.*

VI. What constructions follow these expressions ?
  (*a*) Non est dubium.
  (*b*) Notum est.
  (*c*) Per me stetit.

VII. Distinguish the use of the Ablative with and without *in, ab* and *cum.*

VIII. Write all the second persons singular of *capio.*

IX. (*a*) Form Latin and English nouns from *humilis, fortis, patior, ago.*
  (*b*) Write the following in composition with the preposition *ob :* *cado, caedo, fero, jacio.* Conjugate the compounds thus formed.

X. Write in Latin :
  (*a*) Having done this they set out, the one for Asia, the other for Sicily.
  (*b*) At Athens there was a wall sixteen feet high and nine wide.
  (*c*) We must all obey the laws of our country.
  (*d*) Are you afraid that your general will not know what is best to be done ?

MATHEMATICS.

GEOMETRY.

Examiner..ALEX. ROBINSON, B.A.

CLASS " C."

Time - - 2½ hours.

I. Give the *postulates* and *axioms.*

II. Any two sides of a triangle are together greater than the third side.

III. If one side of a triangle be produced, the exterior angle is greater than either of the interior opposite angles.

IV. To draw a straight line at right angles to a given straight line from a given point in the same.

V. If two triangles have two angles of the one equal to two angles, etc., complete the enunciation and prove the proposition.

VI. Prove that any three sides of a quadrilatical figure are together greater than the fourth side.

VII. Show that the sum of the straight lines, joining the angles of a triangle with a point within the triangle, is less than the perimeter of the triangle, and greater than half the perimeter.

VIII. The two sides of a triangle being produced, if the angles on the other side of the base be equal, show that the triangle is isosceles.

CLASS "B."

Time   -   2½ hours.

I. The bisectors of the three angles of a triangle are concurrent.

II. The perimeter of an isosceles triangle is greater than the perimeter of a rectangle, which is of the same altitude with, and equal to, the given triangle.

III. If m and n be any units whatever and lines be taken whose lengths are $m^2 + n^2$, $m^2 - n^2$ and $2mn$ respectively, show that these three lines can form a right-angled triangle.

IV. Find a line the square on which shall be equal to the sum of the squares on five given straight lines.

V. Enunciate and prove geometrically the following propositions :
$$m^2 + n^2 + 2mn = (m + n)^2$$
$$m^2 + n^2 - 2mn = (m - n)^2$$

VI. Give an enunciation that will cover those of V. and VI., Book II.; *also*, one that will cover X. and IX. of the same book.

VII. Divide a given straight line in medial section.

VIII. Enunciate the following propositions :
(1) $(x+y)x + (x+y)y = (x+y)^2$
(2) $x^2 - y^2 = (x+y)(x-y)$
(2) $m(p+q+r) = mp + mq + mr$

CLASS "A."

Time   -   -   2½ hours.

I. Enunciate the propositions of the Second Book which prove the following truths :
$$(x+y)^2 = x^2 + 2xy + y^2$$
$$(x-y)^2 = x^2 - 2xy + y^2$$
$$(x+y)(x-y) = x^2 - y^2$$

II. The exterior angles of any convex rectilinear figure, made by producing each of its sides in succession, are together equal to four right angles.

III. The perpendiculars drawn from the vertices of a triangle to the opposite sides are concurrent.

IV. Divide a straight line externally in medial section.

V. Shew that the sum of the squares on two unequal lines is greater than twice the rectangle contained by the lines.

VI. One circle cannot touch another in more points than one, whether it touch it internally or externally.

VII. To draw a straight line from a given point, either *without* or *on* the circumference, which shall touch a given circle.

ORIGINAL EXERCISES.

Book I. What is the magnitude of each angle of the following equiangular figures : A pentagon, an octagon, dodecagon ?

Book II. D. is the middle point of the side BC of a triangle ABC. If the squares on AB, AC, are together equal to four times the square on AD, shew that BAC is a right angle.

Book II. A parallelogram, whose sides touch a circle, is a rhombus, whose diagonals intersect in the centre of the circle.

ALGEBRA.

Examiner .... ALEX. ROBINSON, B.A.

CLASS "C."

Time . . $2\frac{1}{2}$ hours.

I. Divide $x^3 + 3xy + y^3 - 1$ by $x + y - 1$.

II. Find the continued product of $x + a$, $x + b$ and $x + c$.

III. Add together the following : $-12x - 5y + 4z$, $3x + 2y - 3z$ and $9x - 3y + z$; *also*, from $9p - 4q + 3r$ take $6q - 3p + r$.

IV. Find the value of the following :
$$2x - \left\{ a - (2a - [3a - (4a - [4a - (6a - x)])]) \right\}$$

V. Write out the eight formulae and using the appropriate ones find the value of the following:

(a) $(x^2 + 2x - 3)^2$
(b) $(x^3 - y^3 - z^3)^2$
(c) $(x^2 - 2y^2 + 5z^2)^2$
(d) $(2x + 3y + 4z)^3$

VI. Divide $x^3 + (a + b + c)x^2 + (ab + ac + bc)x + abc$ by $x + b$.

CLASS "B."

Time - - $2\frac{1}{4}$ hours.

I. Resolve into factors:

(a) $abx^2 - axy + bxy - y^2$
(b) $a^2b^2 - 27ab + 26$
(c) $x^2 - (c - d)x - cd$
(d) $2xy - x^2 - y^2 + 1$

II. Find the H. C. F. of $x^3 - 4x^2 + 9x - 10$, $x^3 + 2x^2 - 3x + 20$, and $x^3 + 5x^2 - 9x + 35$; *also*, the L. C. M. of $x^3 - 27$, $x^2 - 15x + 36$ and $x^3 - 3x^2 - 2x + 6$.

III. Find the value of:

$$\frac{1}{(m-2)(m-3)} + \frac{2}{(m-1)(3-m)} + \frac{1}{(m-1)(m-2)}$$

IV. Solve the following equations:

(a) $\dfrac{x+9}{4} - \dfrac{3x-6}{5} = 3 - \dfrac{2x}{7}$

(b) $\dfrac{3}{c} - \dfrac{ab - x^2}{bx} = \dfrac{4x - ac}{cx}$

(c) $\dfrac{2}{1-x} + \dfrac{8}{1+x} = \dfrac{45}{1-x^2}$

V. An army in a defeat loses one-sixth of its number in killed and wounded and 5000 prisoners. It is reinforced by 7000 men, but retreats, losing a fourth of its number in doing so. There remain 25,000 men. What was the original force?

VI. At what time are the hands of a watch together

(1) Between 3 and 4.
(2) Between 6 and 7.
(3) Between 9 and 10.

VII. Find the value of :

(1) $\dfrac{a^2 - 4a + 3}{a^2 - 5a + 4} \times \dfrac{a^2 - 9a + 20}{a^2 - 10a + 21} \times \dfrac{a^2 - 7a}{a^2 - 5a}$

(2) $\dfrac{(x - m)^2 - n^2}{(x - n)^2 - m^2} \times \dfrac{x^2 - (n - m)^2}{x^2 - (m - n)^2}$

(3) $\dfrac{x^2 - 2xy + y^2 - z^2}{x^2 + 2xy + y^2 - z^2} \times \dfrac{x + y - z}{x - y + z}$

CLASS " A."

Time - - $2\frac{1}{2}$ hours.

I. Write out the eight formulae. Using the formula that is appropriate, find the value of the following :

(a) $(x^2 + xy + y^2)\ (x^2 + xy - y^2)$
(b) $(x^2 + xy + y^2)\ (x^2 - xy - y^2)$
(c) $(a + b)^2\ (a - 2ab - b^2)$
(d) $(x^2 - 5x + 7)^2$
(e) $(ax + by)^2\ (ax - by)^2$

II. Factor the following :

(a) $bm + mn + ab + an$
(b) $x^6 - y^6$
(c) $(a + b)^2 - (c + d)^2$
(d) $2xy - x^2 - y^2 + 1$
(e) $a^2 + b^2 - c^2 - d^2 - 2ab - 2cd$

III. Find (1) the H. C. F. and (2) the L. C. M. of
$2x^2 + x - 1,\ x^2 + 5x + 4$ and $x^3 + 1$

IV. Find the value of the following fraction :

$$\dfrac{1}{a\,(a - b)\,(a - c)} + \dfrac{1}{b\,(b - c)\,(b - a)} + \dfrac{1}{c\,(c - a)\,(c - b)}$$

V. Extract the square root of

$$x^4 - 3 + \dfrac{x^2}{4} + 4x - 2 + \dfrac{4}{x^2}$$ and the cube root of $8x^6 + 48cx^5 +$
$$60c^2x^4 - 80c^3x^3 - 90c^4x^2 + 108c^5x - 27c^6$$

VI. If

$$\frac{m}{x} + \frac{n}{z} = 1$$

$$\frac{n}{x} + \frac{m}{z} = 1$$

find the values of x and z

VII. Solve the following quadratic equation :

$$\frac{a^2}{(x+a)^2} - \frac{b^2}{(x-a)^2} = 0$$

VIII. A and B shoot by turns at a target. A puts 7 bullets out of 12 into the centre, and B puts 9 out of 12. Between them they put in 32 bullets. How many shots did each fire?

IX. A person sculling in a thick fog, meets one barge and over-takes another which is going at the same rate as the former ; show that if a be the greatest distance to which he can see, and b, b^1 the distances that he sculls between the times of his first seeing and passing the barges,

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

X. A number consists of 6 digits, of which the last to the left hand is 1. If this number is altered by removing the 1 and putting it in the units' place, the new number is three times as great as the original one. Find the number.

WRITTEN ARITHMETIC.

Examiner............................JOHN H. KERR, B.A.

CLASS "C."

Time - - 2½ hours.

I. Prove $2 \div \frac{1}{7} = 14$.

II. Define compound fraction, complex fraction, and mixed repetend.

III. Divide $20,000 among a widow, 3 sons and 5 daughters, giving the widow $1000 more than all the rest together, the eldest son $1000 more than each of his brothers, and the eldest daughter $500 more than each of her sisters, so that each of the younger sons and the eldest daughter have the same.

IV. A man bought 63 sheep, and sold $\frac{4}{9}$ of them at a profit of 15%,
$\frac{1}{7}$ at a profit of 50%, and the remainder at a loss of 25%; what did he pay for the sheep if his gain was $18.48 on the whole transaction?

V. A does $\frac{3}{5}$ of a work in 11 days; B then comes to his assistance, and together they finish it in 4 days; how long would it take each by himself to do the work?

VI. Divide $2380 between A and B so that $\frac{2}{3}$ of A's share will be equal to $\frac{3}{4}$ of B's.

VII. Find the value of .8$\dot{3}$ of 8s. + .0$\dot{5}$ of 2 guineas + 1.8 of 5s.

VIII. Find the sixth root of 4,826,809.

IX. Divide 448.71\frac{1}{2}$ among A, B, C, so as to give B $46.70 less than A and $34.59 more than C.

X. Reduce 60 miles an hour to feet per second.

CLASS "B."

Examiner .... ALEX. ROBINSON, B.A.

Time   -   -   2$\frac{1}{4}$ hours.

I. The interest on $1805, loaned on May 13th, at 5$\frac{1}{4}$ per cent. per annum was $37.905; on what day was the money returned?

II. What sum at 4 per cent., compound interest, will amount in 2$\frac{1}{2}$ years to $16989.7728?

III. The difference between the simple and compound interest of a sum of money for 3 years at 8 per cent. is $985.60. What is the sum?

IV. A invests $552 in the 3$\frac{1}{4}$ per cents. when they are at 92; B invests $679 in the 3 per cents. when they are at 97. Find the difference of their incomes.

V. If $\frac{5}{7}$ of the cargo of a ship be worth $16000, what will be the value of $\frac{2}{3}$ of $\frac{7}{8}$ of the remainder?

VI. The mathematical discount in a sum of money for 2 years is $360; the interest on the same sum for the same time is $400; find the sum and the rate per cent.

VII. A and B can do a piece of work in 8 days, B and C can do it in 12 days, and A, B and C can do it in 6 days. In how many days can A and C, working together, do it?

CLASS " A."

Time - - $2\frac{1}{2}$ hours.

I. The discount on a certain sum, due 9 months hence, is $20, and the interest on the same sum for the same time is $20.75. Find the sum and the rate of interest.

II. In how many years will $320 double itself at $7\frac{1}{2}\%$ simple interest?

III. How much money must one invest in 3 per cent. consols, when they are at 10 per cent. below par, in order to have an income of £2000 a year?

IV. A person having $9790 in the Toronto City 6 per cent. bonds sells out at $98\frac{1}{2}$, and invests the proceeds in Bank of Montreal stocks at $177\frac{1}{2}$, which brings a dividend of 12 per cent. per annum. Find the change in his income, brokerage in each transaction being $\frac{1}{2}\%$.

V. Find the square root of 15376.248001 and $\frac{31.36}{39.69}$

VI. A man wishing to sell a horse asked 25 per cent. more than it cost; he finally sold it for 15 per cent. less than his asking price and gained $5.75. How much did the horse cost and what was the asking price?

VII. I bought 20 lbs. of opium by avoirdupois weight at 55 cents per ounce, and sold it by troy weight at 60 cents per ounce. Did I gain or lose, and how much?

VIII. I send to my agent in Montreal $3060 to invest in tea at 75 cents per lb.; he deducts his commission of 2 per cent. and invests the balance. At what must I sell per lb. so as to make a clear profit of 25 per cent. after paying freightage $30, and insurance at the rate of $\frac{1}{3}\%$.

MENTAL ARITHMETIC.

Examiner ....JOHN H. KERR, B.A.

CLASS " C."

Time - - $\frac{3}{4}$ hour.

I. At $4.50 per dozen, what will 17 books cost?

II. Find the true discount off $80 due in one year and 8 months, money being worth 9%.

III. The difference between the true and bank discount on a sum of money for 2 years at 5% is $1 ; find sum.

IV. If $30 is 40% less than the cost of an article, what will $16\frac{2}{3}$% more than its cost be?

V. What time is it if the time past noon is $\frac{5}{6}$ of the time till midnight?

VI. Bought apples at rate of 3 for 10c., and sold them at rate of 5 for 20c., what did I gain %?

VII. $\frac{2}{3}$ of 48 is $\frac{4}{5}$ of how many times 8?

VIII. The difference between the interest and discount of a sum of money for 1 year at 8% is 64c.; find the sum and rate.

IX. $\frac{1}{5}$ of my money is in my pocket, $\frac{1}{4}$ in bank ; I find $1.50, which I put in my pocket, making amount in my pocket equal to amount in bank ; how much had I at first?

X. A vessel is worth $38,000 ; for how much must the owner insure it so as to cover both the value of vessel and premium paid?

CLASSES "B" AND "A."

Examiner . . . . ALEX. ROBINSON, B.A.

Time   -   - $\frac{3}{4}$ hour.

I. A man sold two lots at $400 each ; on one he lost 20 per cent. and on the other he gained 20 per cent.; how much did he gain or lose on the whole?

Ans. . . . .

II. When the English funds are at 75, what amount of stock must be sold to realize £125?

Ans. . . . .

III. How much 3 per cent. stock must be bought at $88\frac{1}{2}$ in order that by selling out at $88\frac{3}{4}$ there may be a gain of $21?

Ans. . . . .

IV. A and B wish to divide the amount of $800 for 8 years at 5 per cent., so that A's part shall be 6 times B's ; find each man's share.

Ans. . . . .

V. What principal will produce 30 cents interest in 25 days at 6 per cent.?

Ans........................

VI. The amount of a certain principal for a certain time at 8 per cent. is $280, and at 5 per cent. the amount is $250; find the time and the principal.

Ans........................

VII. Find the difference between the bank discount and the true discount on a note of $126, at $16\frac{2}{3}$ per cent. for 1 year; for 2 years.

Ans........................

VIII. The discount on a certain sum for two years is $2\frac{8}{11}$, and the interest for the same time and rate is $3; find the sum and rate per cent.

Ans........................

MENSURATION.

Examiner ....JOHN H. KERR, B.A.

CLASS "B."

Time   -   - $2\frac{1}{2}$ hours.

I. Define sector, zone of a circle, and similar figures.

II. The parallel sides of a trapezoid are 8 feet and 14 feet respectively; two straight lines are drawn across the figure parallel to these so that the four are equidistant; find the length of these lines and the areas of the parts.

III. Show how to find the height of an arc, having given the chord of half the arc and the diameter of the circle.

IV. The height of an arc is 2 feet, and the circumference of the circle is 31.416 feet; find the chord of the arc.

V. A horse is fastened by a rope 10 feet long to the top of a post 5 feet high; over how much space can he graze?

VI. State and prove the rule for finding the length of an arc of a circle.

VII. A field in the shape of a rhombus has one side and one diagonal 10 chains long; find its height. How many acres does it contain?

VIII. State and prove the rule for finding the area of a trapezoid.

IX. The perimeter of a figure which is made up of three quadrants of a circle is $13\frac{3}{7}$ feet; find the radius of the completed circle.

X. A field is in the form of a right angled triangle, the two sides containing the right angle being 50 and 100 yards. If the triangle be divided into two parts by a straight line drawn from the right angle perpendicular to the opposite side, find the area of each part.

CLASS "A."

Examiner ....JOHN H. KERR, B.A.

Time   - $2\frac{1}{2}$ hours.

I. A farmer has a rectangular field 80 rods long and 60 rods wide; what are the dimensions of a similar field containing $13\frac{1}{2}$ acres?

II. What will be the cost of a thousand tiles in the shape of a rhombus 12 inches on a side, a line drawn from an obtuse angle to the opposite side, meeting it 9 inches from the acute angle, at 75 cts. a sq. foot?

III. How much will it cost to roof a warehouse 48 ft. by 60 ft. with slate, the height of the ridge being 10 feet, and the eaves projecting 6 inches, at $14.75 per 100 sq. ft.?

IV. Required the length of a hand rail for a flight of stairs of 18 steps, each step being 7 in. high by $9\frac{1}{2}$ wide.

V. The height of an arc is 2 feet and the area of the circle is 78.54 sq. ft.; find the chord of the arc.

VI. Find the length of a side of a regular polygon of 12 sides inscribed in a circle whose radius is 1 foot. Find also the area.

VII. Having given the three sides of a triangle, show how to find the diameter of the described circle.

VII. State and prove the rule for finding the area of a sector of a circle.

IX. A B C D is a square. A line drawn from A to the middle point of DC is 5 feet long; find the length of AB, and the area of the square.

X. The perimeter of 3 quadrants of a circle is $9\frac{3}{7}$; find the perimeter and area of the circle.

TRIGONOMETRY.

CLASS "A."

Examiner......................Education Department;

Time - - 1½ hours.

I. (*a*) The difference of the two acute angles of a right-angled tri-
   angle is 20° 35′ ; find the angles of the degrees.

(*b*) The sides of a right-angled triangle are in the ratio $1 : 2 : \sqrt{3}$.
   Find the sine, cosine, and tangent of each acute angle of
   the triangle.

II. Prove the following statements : —
   (*a*) $\mathrm{Sin}^2\ \mathrm{A} - \mathrm{Cos}^2\ \mathrm{B} = \mathrm{Sin}^2\ \mathrm{B} - \mathrm{Cos}^2\ \mathrm{A}$
   (*b*) $\mathrm{Tan\ A} + \mathrm{cot\ A} = \mathrm{sec\ A.\ cosec\ A.}$

III. Solve the following triangles :—
   (*a*) $\mathrm{A} = 45°$, $\mathrm{B} = 60°$, and $a = 2$.
   (*b*) $a = 1$, $b = 1 + \sqrt{3}$, $\mathrm{A} = 15°$.

IV. (*a*) What is the logarithm of a number to a given base ?
   (*b*) Given log. $2 = .3010300$, log. $3 = .4771213$; find the
      logarithms of 54 and 120

V. A person wishing to know the distance of a point C measures a
   straight line AB, and finds it to be 100 yards ; he observes
   that the angles BAC and ABC are respectively 53° 20″
   and 59° 30′: determine the distance of C from A.
   L sin. 59° 30′ = 9.9353204,
   L sin. 67° 10′ = 9.9645702,
   log. 93489 = 4.9707605.

ENGLISH LANGUAGE AND LITERATURE.
ENGLISH GRAMMAR.

Examiner.......................James C. Shaw, A.M.

CLASS "C."

Time - - 2½ hours.

I. Analyse :
   'Tis sweet to hear the watch-dog's honest bark
      Bay deep-mouthed welcome *as* we near our home ;
   'Tis sweet to know *there* is a eye will mark
      Our *coming*, and look brighter when we come ;
   'Tis sweet to be awakened by the lark,
   - Or lull'd by falling waters ; sweet the hum
   Of bees, the voice of girls, the song of birds,
      The lisp of children and their earliest *words*.

II. Parse the woods italicised.

III. Give the plural of the following : *colloquy, knight-errant, simile, M.D., heathen, pailful.*

IV. Write the Simple Future of *go* affirmatively and interrogatively.

V. Explain and illustrate the *restrictive* and the *conjunctive* uses of the relative.

VI. Mention and illustrate the various *complementary* uses of the Infinitive.

VII. Discuss the construction of the following :
    (*a*) The old martial stock than whom better men never did and never will draw the sword for king and country.
    (*b*) Forthwith on all sides to his aid was run By angels many and strong.
    (*c*)   If thou speakest false, Upon the next tree shalt thou hang alive.
    (*d*) The leaving a neighborhood in which we had enjoyed so much happiness was not without a tear.

VIII. Punctuate the following :
    I here fetched a deep sigh alas said I man was made in vain how is he given away to misery and mortality tortured in life and swallowed up in death.

IX. Give the plot, and discuss the merits, of any story you have read.

CLASS " B."

Time   -   -   2½ hours.

I. Mention the main points in which Old English differs from the present form of the language.

II. Comment upon the following words : *Colloquies, children, riches, eaves, nearer, whether, could, yclad, wis, cunning.*

III. Discuss the various uses and meanings of *the, needs,* and *do.*

IV. Write grammatical notes on the construction of the following :
    (*a*) He sprang in, sword in hand.
    (*b*) " It was the English," Kaspar cried, " That put the French to rout."
    (*c*) No longer mourn for me when I am dead.
    (*d*) You know that yon are Brutus that speaks thus.
    (*e*) Him I accuse the city ports by this hath entered.
    (*f*) Sent to prepare the way . . . by preaching of repentance.

V. When is *that* preferred to *who* or *which* ?

VI. Explain and illustrate the *restrictive* and the *conjunctive* uses of the Relative.

VII. Write etymological notes on the following words : *Answer, nominee, pocket, bishopric, jetsam, frugile, lucid, physic, athlete, apathy.*

VIII. Punctuate the following passage :
> I here fetched a deep sigh alas said I man was made in vain how is he given away to misery and mortality tortured in life and swallowed up in death

IX. Give the plot, and discuss the merits, of any story you have read.

ENGLISH LITERATURE.

CLASS " B."

Time - - 2½ hours.

I. Analyse :
> The stranger viewed the shore around :
> 'Twas all so close with copsewood bound
> Nor track nor pathway might declare
> That human foot frequented there,
> Until the mountain-maiden shewed
> A clambering unsuspected road,
> That winded through the tangled screen,
> And opened on a narrow green,
> Where weeping birch and willow round
> With their long fibres swept the ground.

II. Explain the following extracts :
(a) Huge as the tower which builders vain
Presumptuous piled on Shinar's plain.
(b)   Since to your home
A destined errant-knight I come.
(c) My sire's tall form might grace the part
Of Ferragus or Ascabart.
(d) The Lady of the Bleeding Heart.
(e) Full soon may dispensation sought
To back his suit from Rome be brought

III. Write grammatical notes on the italicised words in the following :
    (a) Woe *worth* the *chase.*
    (b) Sleep the *sleep* that knows not *breaking.*
    (c) Can I not view a Highland brand,
        But I must match the Douglas hand ?
    (d) Yet is this mossy rock to me
        Worth splendid *chair* and canopy.
    (e)   Woe the *while*
        That brought such wanderer to our isle.

IV. Give the meaning and etymology of *quarry, symphony, antlered, expiring, dingle, bulwark, bugle, canopy, pennons, uncouth, weird, gauntlet, stalwart.*

V. Discuss the metres in the *Lady of the Lake.*

VI. Mention three of the most poetical passages in the poem, quoting as far as possible.

VII. Reproduce *either* the description of Fitz-James *or* Ellen's characterisation of Roderick.

CLASS "A."

    The abuse of greatness is when it disjoins
    Remorse from power ; and, to speak truth of Caesar,
    I have not known when his affections sway'd
    More than his reason.   But 'tis a common proof
    That lowliness is young ambition's ladder,
    Whereto the climber-upward turns his face ;
    But when he once attains the upmost round
    He then unto the ladder turns his back,
    Looks in the clouds, scorning the base degrees
    By which he did ascend.   So Caesar may.

I. Express the sense of the passage in simple prose.

II. Analyse to "turns his face."

III. Explain the following passages, naming the speaker and stating circumstances under which they were uttered :
    (a) Let not our looks put on our purposes.
    (b) My heart laments that virtue cannot live
        . Out of the teeth of emulation.
    (c) My mi-giving still falls shrewdly to the purpose.
    (d) These couchings and these lowly courtesies
        Might fire the blood of ordinary men,
        And turn pre ordinance and first degree
        Into the law of children.

(e) Now I have taken heart, thou vanishest.
(f)   Is it fit,
The three-fold world divided, he should stand
One of the three to share it?
(g) You know I held Epicurus strong,
And his opinion.

IV. Parse the words italicised in the following extracts:
    (a) When there is in it *but one only* man.
    (b) Ay, and truly, *you were* best.
    (c) He plucked *me* ope his doublet.
    (d) Revenge yourselves *alone* on Cassius.
    (e) No instrument of half that worth *as* those your swords.

V. Discuss the appropriateness of the name of this play.

VI. Describe the means by which Brutus is induced to join the conspirators.
   Or, Show how Antony succeeds in exciting the mob " to rise and mutiny."

VII. What is Antony's estimate of Brutus? What is yours?

RHETORIC.

CLASS "A." -   -   -   - Time $2\frac{1}{2}$ hours.

I. Give definitions and example of *Asyndeton, Euphemism, Redundancy,* the various kinds of *Synecdoche, Periodic* and *Loose Sentences.*

II. Discuss the advantage of the English order of adjective and noun, and extend the principle.

III. Give some practical rules for attaining *clearness.*

IV. Upon what does *strength* of style depend? What are its conditions.

V. What is meant by *unity* in a sentence? Give the rules for securing it.

VI. What figures of speech are employed in the following passages?
    (a) In your bad strokes, Brutus, you give good words.
    (b) When the battle fierce came forth
       All the might of Denmark's crown.
    (c) Hell grew darker at his frown.
    (d) Break up the senate till another time,
       When Caesar's wife shall meet with better dreams.

(e)   Tell thou the silent sky,
And tell the stars, and tell yon rising sun,
Earth, with her thousand voices, praises God.

VII. What principles of Rhetoric are violated in the following :
    (a) He got so far into the forest that he was soon all at sea.
    (b) It is not to be denied that a high degree of beauty does
          not lie in simple forms.
    (c) Two great sins, one of omission and one of commission,
          have been committed by the states of Europe in
          modern times.
    (d) Cato died in the full vigor of life under fifty ; he was
          naturally warm and affectionate in his temper, com-
          prehensive and impartial, and strongly possessed with
          the love of mankind.
    (e) No place will please me so, no mean of death,
          As here by Caesar and by you cut off.

BRITISH HISTORY.

Examiner .... JOHN H. KERR, B.A.

CLASS " C."

Time   •   •   2½ hours.

I. Name the Norman kings with dates, and tell how William I.
    came to the throne.

II. Show the connection of the Plantagenets with the Norman
    Line, and explain the grounds of quarrel between Henry
    II. and Becket.

III. Sketch the events which led up to the founding of the House of
    Commons.

IV. Give a short account of Richard II.'s reign.

V. Show clearly the causes of Wars of Roses. Sketch the progress
    and give results.

VI. What difficulties had Henry VII. to contend with ? Show how
    he met them.

VII. Write notes on :
    (a) Conquest of Wales under Edward I.
    (b) Growth of House of Commons.
    (c) Home policy of Edward IV.

CLASS " B."

<center>Time - - 2½ hours.</center>

I. Give the Lancastrian Kings, with dates, and give the chief events in Henry V.'s reign.

II. Sketch the career of Thomas Cromwell.

III. Shew clearly how Henry VII. was helped to the throne.

IV. Shew how the quarrel between King and Parliament began in James I.'s reign.

V. Give an account of Charles I. and his parliaments.

VI. What was the cause of Charles II.'s restoration?

VII. Write notes on :
    (a) Oliver Cromwell.
    (b) The Agrarian difficulty under Edward VI.
    (c) Habeas Corpus Act.

CLASS " A."

<center>Time - - 2½ hours.</center>

I. What motives led Edward IV. to go to war with France? Show how the result affected his home policy.

II. " Much good resulted from the fact that the early Plantagenets trusted to favorites." Illustrate the truth of this statement.

III Give principal provisions of following :
    (a) Magna Charta.
    (b) Habeas Corpus Act.
    (c) Declaration of Rights.

IV. Sketch the career of Thomas Cromwell and comment upon it.

V. Give the steps by which Henry VIII. was made an absolute king, showing how each was brought about.

VI. Write an account of the several parliaments in the reign of Charles I.

VII. Write notes on :
    (a) Hampton Court conference.
    (b) Pilgrimage of Grace.
    (c) Self-denying Ordinance.

GEOGRAPHY.

Examiner.............................JOHN H. KERR, B.A.

CLASS "C."

Time   -   -   2¼ hours.

I. Define promontory, lagoon, zone, latitude, and limited monarchy.

II. Name the provinces of Canada with the capital and industries of each.

III. Account for the difference in climate between the Eastern and Western coasts of Canada.

IV. Name the extreme points of Newfoundland, and its rivers and products.

V. Name the Eastern states and give the boundaries of Connecticut.

VI. Name the districts on the mainland of B.C., and its principal rivers and inlets.

VII. Give a list of the British possessions in North America with the chief town of each.

VIII. Trace a water-way from Lake Superior to Gulf of St. Lawrence, naming any large towns passed on the way.

IX. Name the states on the Gulf of Mexico and tell for what each is important.

X. What and where are the following: Arrow, Shepody, St. John, Adirondack and Chesapeake.

CLASS "B."

Time   -   -   2½ hours.

I. Define longitude, equinox, equator, geyser, and pampas.

II. Divide North America into slopes, and give the principal rivers in each. Tell where each river empties.

III. Draw a map of South America, shewing the mountain and river system of the continent.

IV. Classify the West Indies according to the country to which belongs.

V. What articles of commerce would a merchant vessel carry on a voyage from Liverpool to Vancouver, calling at Jamaica, Buenos Ayres, Valparaiso and San Francisco.

VI. Name in order the States and Territories bordering on the Dominion of Canada, with capitals.

VII. Where and what are following: Marajo, Great Belt, Butt of Lewis, Otranto, and Yenikale.

CLASS "A."

Time - - 2½ hours.

I. Define snow line, isothermal line, ecliptic, arctic circle, and first meridian.

II. What is climate? Give a list of causes that effect it.

III. Give the causes of: (a) Day and Night.
(b) The seasons.
(c) Tides.

IV. Contrast the industrial and commercial value of Quebec with that of British Columbia.

V. Name the British possessions in the Western Hemisphere, giving the position of each.

VI. Give the boundaries, chief towns, products of Pennsylvania.

VII. What and where are following: Lookout, Vermejo, Blue, Para, Port of Spain.

BOOK-KEEPING.

Examiner .... JOHN H. KERR, B.A,

CLASS "C."

Time - - 2½ hours.

I. Define promissory note; acceptance; and give an example of each.

II. What is an account? Give an example of the different kinds.

III. Describe the day book, cash book and ledger.

IV. What cash transactions are to be entered into the day book? Show by an example how you would close a ledger account.

V. What accounts would be affected, and how, by the following entries:
(1) Sold goods to A, on account $300,

(2) Sold goods to B to the amount of $500, receiving $200 cash and his note at 3 months, payable at Bank of B.C.

(3) Bought goods from C $900, paying $600 cash, balance on account.

VI. Enter in day book, cash book, and ledger, the following :

Jan. 1. R. Rhodes commenced business with mdse. on hand $400, cash on hand $1500.

2. Sold J. Campbell on a/c 10 yds. calico @ 12c.; 5 yds. ribbon @ 20c.; 5 yds. broadcloth @ $5. Paid for stationery, etc., $3.75

3. Received cash from R. Rhodes $10. Sold L. Thomas on a/c 15 yds. cassimere @ $1.00 Cash sales this day $115.25.

4. Sold D. Johnson on a/c 6 yds. flannel @ 50c.; 12 yds. alpaca @ $1.50. Cash sales $85.50.

5. Paid for cleaning store $4.

CLASS "B."

Time   -   -   2½ hours.

I. Define book-keeping, single entry, double entry, and fictitious account.

II. Give an example of each of the following :
   (a) An order for goods.
   (b) Note, negotiable without endorsement.
   (c) Receipt in full of all demands.

III. What is a Trial Balance ?

IV. Explain how to close the Loss and Gains Account.

V. Journalize the following transactions :
   (a) Bought from J. McDonald & Co., 50 pieces of cloth containing 30 yds. each. @ $2.25 per yd.; paid cash $750 and gave my note at 6 mos. for remainder.
   (b) Sold to John Smith, goods, $200 ; received in cash $50 and his note at 1 mo. for remainder.
   (c) Sold to Geo. Brown, for cash, goods, $96.
   (d) Lost my pocket book containing $150.

VI. Post No. 5 to Ledger and Bill Book,

CLASS "A."

Time   -   -   2½ hours.

I. What are the objects of Book-keeping? Discuss the relative importance of Single and Double Entry.

II. Explain the following terms: Stock, bills payable, acceptance, cash sales.

III. Draw out a form for a Bill Book and explain its use.

IV. Give Day Book and Journal entries of a sale for cash, one receiving the buyer's note, and one on account.

V. Journalize the following:

    (a) Began business, investing as follows: Cash $4000, mdse. $5000.

    (b) Sold goods to A. B, $900, on his note at 6 mos.

    (c) Paid A. B's note into bank for discount. Bill $900, discount $36.

VI. Make two statements from the following:

$ 881 00	............Stock............	$5000 00
1500 00	.......Bills Receivable........	1000 00
300 00	........John Mason..........	175 00
5794 67	...........Cash ....?..	4800 00
3500 00	...Mdse. (unsold $1200.00)....	2757 50
4000 00	........Peter Smith..........	1500 00
375 83	...........Expense	
1500 00	........Bills Payable.........	1750 00
	.........Chas. Ryan..........	483 00

CHEMISTRY.

Examiner.............................ALEX. ROBINSON, B.A.

CLASSES "B" AND "A."

Time - - 2½ hours.

I. Give the symbols for each of the following substances: *Carbonic Acid, Marble, Sulphuric Acid, Hydrochloric Acid, Calcium Hydrate, Potassium Hydrate, Silver Nitrate, Cupric Sulphate, Common Alum* and *Gypsum.*

II. Fill out the following Chemical Equations and explain the reactions as fully as you deem necessary :

(1) $Ca\ O + H^2O =$ (6) $Ca\ O + CO^2 =$
(2) $Zn + H^2SO^4 =$ (7) $2\ H^2O + K^2 =$
(3) $Hg\ O -$ (8) $Na\ Cl + Ag\ NO^3 =$
(4) $K\ Cl\ O^3 =$ (8) $2\ H^2O + Na^2 =$
(5) $Ca\ CO^3 + 2\ H\ Cl =$ (10) $CO + O =$

III. Explain clearly, drawing diagrams in each case, the "Bunsen Burner" and the "Davy Safety Lamp."

IV. Explain the following terms : Amorphous, Dimorphous and Isomorphous. Give the systems of crystallization, stating the distinguishing characteristics of each system.

V. State how Carbonic Acid Gas is usually obtained. Give its principal properties. What is the test for this gas ? Show that the fact that this gas will put out a candle is not a sufficient test.

VI. What is the distinction between Elements and Compounds ? How many elements are there ? State the two ordinary divisions in which elements are grouped. Discuss shortly this division.

VII. Draw a diagram of a candle-flame, showing its parts, and state what goes on in each of these parts. Name the resultants that arise from the burning of a candle.

VIII. Write a note on Coal, stating (1) How it has been formed; (2) What invariably lies immediately beneath a seam of it; (3) Its uses ; (4) The reaction that takes place when it is burned, and (5) The effect on a country in which it is found in large quantities.

IX. What do you mean by "Hard Water"? Thames water and Trent water are both hard. In what respect do they differ, and how do you explain the difference ? How would you render a hard water soft ?

X. Show how hydrogen gas is prepared. Name its properties. State Marsh's test for arsenic.

BOTANY.

Examiner . . . . JOHN H. KERR, B.A

CLASS "B."

Time - 2½ hours.

I. Define Botany. Give the parts of a plant, with the function of each.

II. Explain sessile, polyandrous, albumen, micropyle, and hypogynous.

III. Examine the marsh-marigold.

IV. Give the characteristics of Ranunculaceae, with a list of the principal plants of the order.

V. Describe, with examples, Papilionaceous and Labiate Corallas.

VI. Mention, with examples, the principal modes in which pollen gains access to the stigma.

VII. Tabulate a description of the Dandelion.

VIII. Describe the various forms of the Calyx and the Corolla.

IX. Give the characters of the Rose family.

X. Explain the distinction between Tubers and Bulbs.

CLASS "A."

Time - - 2½ hours.

I. Make a table showing the different kinds of flowering plants.

II. Describe the different parts of the flower.

III. Explain the process of fertilization in flowering plants.

IV. Explain gymnosperms, umbel, syncarpous, epipetalous, and diadelphous.

V. Distinguish monoecious and dioecious plants.

VI. Examine one of each in No. 5.

VII. Describe the different kinds of roots, and show how to tell an underground stem from a root.

VIII. How are "exogens" distinguished from "endogens"?

IX. How are plants nourished before and after appearing above ground ?

X. What is meant by imperfect, incomplete, and unsymmetrical flowers respectively ?