PART III.

APPENDICES.

APPENDIX A.

HIGH SCHOOL ENTRANCE EXAMINATION, JUNE, 1930.

The High School Entrance Examination was held on June 24th, 25th, and 26th at 191 centres throughout the Province.

Under the regulations of the Department, pupils attending a public school in a district where a high school or a superior school is in operation are promoted on the recommendation of a committee composed of the Principal of the school, the Principal of the high school or superior school, and the Provincial Inspector of Schools.

The number of pupils who were successful in obtaining certificates follows:—

On recommendation	4,365
On examination	1,266
Total	5,631

Amy MacDonald, a pupil of the Granby Bay Public School, had the honour of leading the Province with an aggregate mark of 543 out of a possible 600.

The names of the winners of His Excellency the Governor-General's bronze medals are:—

District.	Name.	School.	Marks obtained.
No. 1	Hing Hope	North Ward School, Victoria	539
No. 2	J. Margot Bate	Nanaimo School	507
No. 3	Barbara L'Estourgen Salisbury	Walter Moberly School, Vancouver	526
No. 4	Dorothy Evelyn Boshier	Hollyburn School, West Vancouver	523
No. 5	Frank J. Ling	Sardis School, Chilliwack	517
No. 6	Algot Olofsson	Lear School	516
No. 7	Margaret May Miller	Allenby School	524
No. 8	Frances Marion Moran	Trail Central School	523
No. 9	Kathleen Ellen Bundy	Erickson School	504
No. 10	Amy C. MacDonald	Granby Bay School	543

HIGH SCHOOL EXAMINATIONS, 1930.

The following are the results of the examinations held in June in the various high schools and superior schools throughout the Province:—

	No. of Candidates.	No. passed in all Subjects.	No. granted Supplementals.	No. granted Partial Standing.
Grade IX	511*	233	120	115
Grade X	376*	138	105	84
Grade XI. (Normal Entrance)	233	73	69	90
Grade XI. (Junior Matriculation)	2,451	1,093	603	717
Grade XI. (Normal Entrance and Junior Matriculation)	86	44	26	16
Grade XII	626	154	136	324
Third-year Commercial	193	146	20	28
Third-year Home Economics	50	4	13	33
Third-year Technical	100	30	48	22
Totals	4,626	1,915	1,140	1,429

* Under the regulations of the Council of Public Instruction, the teachers of high schools have the right to determine promotion in Grades IX. and X. As a result, the number of candidates sitting for examination in these two grades is comparatively small. A student who is granted standing in four or more subjects on the June Examinations, and satisfies his principal by oral or written examination before the opening of school in September that he has gained a fair standard of proficiency in the subjects in which he failed in June, may be promoted by the principal to the next grade without further Departmental Examination.

The following summary shows the average mark obtained in each paper at the June Examinations by Junior and Senior Matriculation candidates:—

Subject.	Average Mark.	
	Junior Matriculation.	Senior Matriculation.
English Composition	55.9	48.9
English Literature	57.5	57.9
History	57.8	59.8
Algebra	56.5	54.7
Geometry	47.4	51.4
Chemistry	49.9	53.8
Physics	57.7	45.2
Botany	49.2	.....
Agriculture	64.5	.....
Latin Authors	56.4	51.9
Latin Composition	67.8	62.4
Greek	60.3	94.0
French Translation	62.7	61.8
French Grammar	60.5	58.8
German Authors	.....	67.5
German Composition	.....	54.1
Trigonometry	.....	45.0

His Excellency the Governor-General's silver medals which are awarded annually to the five leading Junior Matriculation students were won this year by the following:—

Name.	High School.	Percentage.
Ethel Naomi Davis	John Oliver, Vancouver	89.5
John Edward Lipson	King Edward, Vancouver	89.0
Kathleen Marjorie Baker	Victoria High	88.2
Percy Philip Saltzman	King George, Vancouver	87.8
Anthony Leycester Hunter	Magee, Vancouver	87.2

The Royal Institution Scholarships awarded annually by the University of British Columbia to the student obtaining the highest marks in the Junior Matriculation Examination, and to the six other students who lead in their respective districts, were won by the following:—

Name.	High School.	Percentage.	Scholarship.
Ethel Naomi Davis	John Oliver, Vancouver	89.5	$150
Kathleen Marjorie Baker	Victoria	88.2	100
Catherine MacLeod	North Vancouver	85.6	100
Samuel Lloyd Lipson	King Edward, Vancouver	89.0	100
Clare Marie Brown	St. Clare School for Girls, Vancouver	88.4	100
Eva Letitia Sutherland	Armstrong	80.3	100
Olive L. Norgrove	Cranbrook	79.1	100

Sheila Joyce McKinnon, Kitsilano High School, Vancouver, was the winner of the Royal Institution Scholarship of $150 which is awarded annually by the University of British Columbia on the results of the Senior Matriculation Examination. Miss McKinnon obtained 827 marks out a possible 1,000.

APPENDIX B.

HIGH SCHOOL ENTRANCE EXAMINATION, JUNE, 1930.

ARITHMETIC.

PART I. (Time, 1 hour.)

[NOTE.—*The questions in Part I. can be solved mentally, but candidates who find any of the problems too difficult to perform mentally may work them out with pen and ink in the space left at the bottom of the page. The answer to each question must be placed on the blank to the right of the question.*]

[*All fractional parts of answers must be given in their lowest terms.*]

	Answer.	Value.
1. Write:—		
(*a.*) Thirty million, eighty thousand, six, in figures.	.....	1
(*b.*) 787070 in words.	.....	1
(*c.*) DCCLXXIX. in figures.	.....	1
2. (*a.*) $\frac{3}{4}+8+2\frac{5}{6}=$	.....	1
(*b.*) $14-4\frac{4}{7}=$	.....	1
(*c.*) $3\frac{1}{2}\times\frac{1}{3}\times 6\times\frac{1}{7}=$	.....	1
(*d.*) $3\frac{1}{2}\div 7=$	.....	1
3. (*a.*) $.06\times 10=$	.....	1
(*b.*) $.06\times .1=$	.....	1
(*c.*) $.06\times .01=$	.....	1
(*d.*) $.06\div 10=$	.....	1
(*e.*) $.06\div .1=$	.....	1
(*f.*) $.06\div .01=$	.....	1
4. Express:—		
(*a.*) .375 as a common fraction.	.....	1
(*b.*) .375 as a percentage.	.....	1
(*c.*) $\frac{7}{8}$ as a decimal fraction.	.....	1
(*d.*) $\frac{7}{8}$ as a percentage.	.....	1
(*e.*) $\frac{1}{4}\%$ as a common fraction.	.....	1
(*f.*) $\frac{1}{4}\%$ as a decimal fraction.	.....	1
(*g.*) $2\frac{3}{4}$ as a percentage.	.....	1
5. A car goes 660 feet in 10 seconds. What is its rate in miles per hour?	.....	4
6. The roof of a shed is 30 feet long by 18 feet wide. Find the cost of painting it at 15 cents per square yard.	.....	3
7. A square field is 80 rods long. In how many minutes can a man walking at the rate of 4 miles per hour walk once around it?	.....	3
8. What will it cost at 75 cents a yard to build a fence around a circular pond having a diameter 28 feet?	.....	3
9. A pile of cordwood is 16 yards long, 6 feet high, and 4 feet wide. What is its value at $10 per cord?	.....	3

	Answer.	Value.
10. Find the simple interest on $330 for 10 months at 6% per annum.	.....	3
11. If a boy sells rabbits at 75 cents each he gains ¼ of the cost. How many rabbits would he need to sell to gain $6?	.....	4
12. A car was sold for $1,000 less three successive discounts of 20%, 10%, 5%. What was the net price?	.....	4
13. What will it cost to cover a 5-inch cube with a layer of gold at 50 cents per square inch?	.....	3

PART II. (Time, 1½ hours.)

[*All work must be shown. One of the marks assigned to each problem will be given for orderly arrangement.*]

Value.

8 1. At $1.20 a rod it costs $288 to fence a square field. What will it cost to plough the field at $3.60 per acre?

8 2. In a certain town is a hill half a mile long, and the street ascending the hill has a 4½-foot sidewalk on each side, which requires sanding after sleet-storms. If the sand be spread .1 inch deep, how many cubic feet of sand will be needed for each sanding of the sidewalks?

10 3. A Canadian merchant buys 3,000 pairs of gloves in France at $1 per pair, pays freight and insurance totalling $60, an ad valorem duty of 5% and a specific duty of 18c. per pair. He sells the gloves so as to gain 20% of their gross cost. Find the selling-price per pair.

8 4. A building costing $20,000 is insured by its owner for 60% of its cost at 1¼% of face of policy.

(*a.*) Find the premium he had to pay.

(*b.*) If the building, while insured, is totally destroyed by fire, how much has the owner saved by insuring?

8 5. On June 1st, 1929, I bought a new motor-car for $1,450, paying 40% of its cost in cash, turning in my old car at $350, and giving my note at 4 months at 6% per annum for the balance.

(*a.*) When will I have to pay the note?

(*b.*) How much must I pay to redeem it?

8 6. A commission merchant sold some fruit for his employer. He retained 2½% commission, paid $2.54 for freight charges, $1.36 for storage, and remitted $347.10 to his employer. For how much did the agent sell the fruit?

CANADIAN HISTORY. (Time, 2½ hours.)

29 1. In each blank fill in the word or words necessary to make the statement complete:—

Captain James Cook, in search of the....., sailed up the west coast of America and landed at..... in the year..... Whilst refitting his vessels, his sailors exchanged trinkets with the Indians for valuable..... Within a few years an immense trade sprang up on this coast, but the right of the British to engage in trade was disputed by the....., who, in 1789, seized the land and vessels of....., who had established a trading-post on the coast. Later, when the dispute was settled, ... was sent out from England to accomplish the formal repossession of the trading-post. About

Value.

this time bitter rivalry between the Hudson's Bay Company and its strongest competitor, the..... Company, resulted in extensive exploration in Western Canada. A partner in the latter Company, named....., was the first white man to cross the Rocky Mountains and reach the Pacific Ocean. He accomplished this task in the year..... Later, Simon Fraser built at .....the first permanent abode of civilized man in British Columbia. Another partner, David Thompson, explored the main stream of the.....River. In 1821 these rival companies were united, the first Governor of the united company being..... A strong man was needed by the Company in the West and..... was chosen. In 1830 he established his headquarters at..... ....., on the north bank of the Columbia River. Fearing that this territory would soon become the property of the ....., the Hudson's Bay Company determined to select a new site for its principal fort on the Pacific; therefore, in 1843, under the direction of the chief trader, whose name was ....., there was built Fort .....on Vancouver Island.

After the settlement of the boundary question between the two countries by the Oregon Treaty in the year.....a colony was formed on Vancouver Island, of which the first governor was..... The discovery of gold on the Mainland of British Columbia in the year .....caused a great rush of miners to the..... River. The Mainland was then created a colony, with..... .....as the capital. To give easier access to the rich goldfields of the Cariboo, the.....Road was constructed. Law in the mining camps was strictly maintained by ....., the Chief Justice of the Colony.

In 1866 the two colonies were united under the name of..... ....., and by proclamation of Governor Seymour, the city of.....was named the capital. By the terms of its union with the other Provinces, British Columbia was promised a railway to connect it with the Eastern Provinces. After considerable delay the.....Railway was completed to the Coast in the year.....

17 2. In each blank fill in the word or words necessary to make the statement complete:—

By a treaty known as the..... France in the year.....gave up to Britain all claim to Canada. Immediately it became necessary to provide some form of government for the new Colony. From 1760 to 1763 military rule was in force. This was superseded by Civil Government set up by the Royal Proclamation of 1763. The form of government provided did not satisfy the settlers. In an effort to bring about conditions that would satisfy both the French and the English settlers, the Parliament of....., in the year 1774, acting on the advice of the Governor, Sir Guy Carleton, passed an Act known as the..... By this Act civil cases were to be tried in the courts by..... law, while criminal cases were to be tried by.....law. An Assembly was not granted, but a..... was created to assist the Governor in law-making.

In 1783 by a treaty known as the.....Great Britain acknowledged the independence of the..... ..... Many of the American colonists were, from the first, opposed to the rebellion and after the war was over emigrated to

Value.

Canada, where they were known as the.....
These new settlers believed that the people should have a voice in the making of the laws and the levying of taxes. Thus came about a strong demand for .....Government. In 1791, to meet this demand, the.....was passed. By this Act, the old province was divided into two provinces under the names of ..... and .....
The Government of each province was to consist of a Governor, appointed by and representing the....., and a parliament or legislature composed of two houses, a..... appointed for life and a.....elected by the people for a term of four years. In addition there was in each Province an Executive Council appointed by the Crown.

The real government of the country was carried on by a group of individuals, all of whom were appointed and were in no way responsible to the people's elected representatives in the Assembly. This group, known in both provinces as the....., was opposed by reformers who sought.....Government. Rebellions occurred in both provinces in the years..... and ....., and, as a result, the British Government sent out .....as Governor and asked him to report on political conditions. In his report he recommended the union of the two provinces and the establishment of..... Government. In the year 1840 his recommendation was adopted and the British Parliament passed an Act known as the.....
.....

Due to differences in race, religion, and population, the Act of 1840, in time, proved unsatisfactory. In 1864 conferences were held at..... and..... to discuss a federal union of all provinces. A number of Irishmen in the United States, hostile to Britain and known as....., invaded Canada. This made the people realize the necessity for union. By royal proclamation on July 1st in the year.....an Act known as the.....
.....came into effect and the four provinces of....., ..., ..., and.....
were united into the Dominion of Canada. British Columbia joined the union in the year.....

6 3. Give in the spaces provided two matters over which each Government exercises authority:—

The Dominion or Federal Government:

(1.) .....

(2.) .....

The Provincial Government:

(1.) .....

(2.) .....

The Municipal Government :

(1.) .....

(2.) .....

12 4. The following names have a place in Canadian History. Mention *one* important event with which each name is connected:—

Joseph Howe .....

Lord Elgin .....

Value.

Henry Hudson .....
Lord Selkirk .....
Egerton Ryerson .....
Laura Secord .....
Sir Arthur Currie .....

The following events in Canadian History are described in your text-book. Name *one* important individual that was connected with each:—

Red River Rebellion .....
Seven Years' War .....
Rebellion of 1837–38 .....
The Battle of Queenston Heights .....
The Selection of Ottawa as Capital .....

8 5. Define the following terms (a formal definition is not required):—

Treaty .....
Census .....
Federal union .....
Representation by population .....

10 6. In the early history of Canada the Indians have an important place. Write as fully as you can about the part that was played by either of the two famous Indian chiefs, Pontiac or Tecumseh.

18 7. In referring to the United Empire Loyalists, your History states, "Nothing remained for them but either to return to Great Britain or to seek new homes in the forests of the north under the old flag."

Write an essay on the United Empire Loyalists under the following heads:—

(1.) Location of their Settlements in Canada.

(2.) Government Assistance.

(3.) Life in early Loyalist Settlements.

DRAWING. (Time, 2¼ hours.)

[*Candidates should be allowed 15 minutes to select the examples called for in question 1. The drawing books and portfolios should be collected at the end of that time and should be returned to the candidates when the examination in the subject is completed.*]

18 1. Select and hand in from drawings done by you during the year an example of each of the following:—

(1.) A drawing of a spray of leaves, finished in pencil, pen, or colour.

(2.) A drawing of a border or band design in colour.

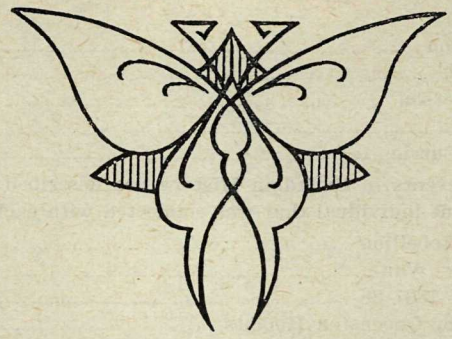
(3.) A drawing of some common object in pencil, pen, or crayon.

26 2. Draw a rectangle 4″ by 6″ to represent a book-cover. Letter therein the following title, making the capital letters about ½″ high and the small letters of corresponding size:—

Geography
Notes on Africa—by William Smith
1930.

28 3. In a 4½″ square, draw a butterfly decoration similar to the copy shown below. Changes may be made in the forms of the wings and also in proportions. Attention should be given to the making of good curves and to the construction generally.

Value.



28 4. Make a pencil outline drawing of the photograph shown below to fill a rectangle 4½" by 6".

ENGLISH COMPOSITION. (Time, 2½ hours.)

Value.

10 1. Combine each group of sentences into one sentence:—

(*a.*) My friend, Sir Roger, is a good Churchman. He has beautified the inside of his Church with several texts. He chose these texts himself.

(*b.*) Many beggars squatted on the stair leading to the Norman dining-hall. This dining-hall was usually on an upper floor. The beggars sometimes grew so insolent that ushers had to be posted outside to beat back the noisy throng. The ushers were armed with rods.

12 2. Compose sentences (one sentence for each word) to illustrate the correct use of the following:—

Counsel, council; core, corps; currant, current; stationary, stationery; steak, stake; principal, principle.

12 3. Write in their appropriate places in the blanks the words that are given on the left-hand side of each sentence:—

vain / proud — We do not blame a man who is.....of his success so much as one who is.....of his learning.

love / like — It has been wisely said that we may.....a friend though we do not.....his faults.

old / aged — Most of my.....friends are still young men; but I have lately become acquainted with a very.....man.

old / ancient — His library contains many.....editions of the .....classical writers.

cure / remedy — He has tried nearly every.....in existence; but no.....has yet been effected.

invention / discovery — We speak of the.....of a new planet or island but of the.....of a new machine.

12 4. Rewrite the following, supplying the necessary capital letters and punctuation-marks:—

(*a.*) a hubert a hubert shouted the populace more interested in a known person than in a stranger in the clout in the clout a hubert forever thou canst not mend that shot locksley said the prince with an insulting smile i will notch his shaft for him however replied locksley who can this be whispered the yoemen to each other such archery was never seen since a bow was first bent in britain.

(*b.*)

bravo bravo the king cried out
all honour to those who try
the spider up there defied despair
he conquered and why not i

6 5. (*a.*) Rewrite the following sentence, changing the direct quotation to the indirect:—

"I am sorry," replied the King, "that my vessel is already chosen and that I cannot, therefore, sail with the son of the man who served my father."

(*b.*) Rewrite the following sentence, changing the indirect quotation to the direct:—

The ruler said that it had been bravely done, and that he would keep his plighted word.

Value.

12 6. Write a short story of two or three paragraphs telling about any unusual or amusing experience that you may have had.

8 7. Write a letter to the Publications Branch, Department of Agriculture, Ottawa, Canada, asking for a copy of the "List of Publications" issued by the Branch. Use your Examination number instead of your name. Rule a space for the envelope and in it write the address.

28 8. Write an essay of at least a page on one of the following subjects:—

(*a.*) The city, town, or district in which I live.

(*b.*) The early history of British Columbia.

(*c.*) My favourite character or theme in the Literature studied.

(*d.*) My ambition in life.

ENGLISH GRAMMAR. (Time, 2 hours.)

21 1. The native inhabitants, who formed five-sixths of the population of Red River, were disturbed when they learned that they were to have new rulers.

To her fair works did Nature link
The human soul that through me ran;
And much it grieved my heart to think
What Man has made of Man.

Give the clauses (principal and subordinate) in the above sentences. State the kind of each clause and the relation of the subordinate clauses.

10 2. Supply the correct word in each blank in the following:—

(1.) The feminine of *wizard* is.....

(2.) The comparative of *bad* is.....

(3.) The masculine plural of *heroine* is.....

(4.) The past participle of *forget* is.....

(5.) The feminine plural of *gander* is.....

(6.) The plural objective of *she* is.....

(7.) An adverb that is formed from *easy* is.....

(8.) The superlative degree of *evil* is.....

(9.) The possessive plural of *mouse* is.....

(10.) The plural of the adjective *this* is.....

5 3. On the line at the end of each sentence state the mood of the verb in italics in the sentence:—

(1.) I *feel* sure that he is ill. .....

(2.) *Come* at once, please. .....

(3.) If he *were* a king, he would rule justly. .....

(4.) He *wishes* to see me. .....

(5.) *Give* me your answer in writing. .....

20 4. In the first sentence given below the group of words, "on whom he relied," is an adjective clause modifying the noun "persons."

State the grammatical value (i.e., classify) the word or group of words given in italics in each of the other sentences. Give also the relation of each word or group of words.

Value.

	Value.	Relation.
(1.) The persons *on whom he relied* were not sincere.	Adjective clause.	Modifying the noun "persons."
(2.) I know *that he is ill.*	.....	.....
(3.) The book *on the desk* is mine.	.....	.....
(4.) *That he is ill* is certain.	.....	.....
(5.) *Driven before the storm* the herd wandered southward.	.....	.....
(6.) He decided *to fight* to the last.	.....	.....
(7.) *Giving* alms to the poor brings satisfaction.	.....	.....
(8.) *To whom* did you speak?	.....	.....
(9.) *When he left* she entered.	.....	.....
(10.) The man was a *soldier.*	.....	.....

10 5. When this introductory ceremony was performed, Cedric extending his hand to Richard, conducted him into a small and very rude chapel which was excavated out of the external buttresses.

The words given in the form below are from the above sentence. Tell what part of speech each word is. Give also the relation of the word.

Word.	Part of Speech.	Relation.
when	.....	.....
this	.....	.....
introductory	.....	.....
extending	.....	.....
his	.....	.....
into	.....	.....
very	.....	.....
which	.....	.....
was excavated	.....	.....
buttresses	.....	.....

Value.

16 6. Write in the blank spaces the verb form referred to in the parentheses:—

(1.) The hound.....the hare.
(present indefinite, active, of the verb *chase*)

(2.) I hope I.....my work by noon.
(future perfect, active, of the verb *finish*)

(3.) The girls.....to their friends.
(present imperfect, active, of the verb *write*)

(4.) They ..... the law.
(past perfect, active, of the verb *break*)

(5.) The directions..... faithfully.
(past perfect, passive, of the verb *follow*)

(6.) The boy.....the ball.
(present perfect, active, of the verb *catch*)

(7.) I have heard that he.....
(future indefinite, passive, of the verb *reward*)

(8.) The race.....by Percy Jones.
(past indefinite, passive, of the verb *win*)

18 7. Select in each case one of the words given in the brackets and then write the word in the blank space. Give the reason for your choice of word.

(1.) The committee has chosen either you or ..... (I or me)
Reason:

(2.) It was.....to whom you gave the money. (he or him)
Reason:

(3.) The dog.....down before the fire. (lay or laid)
Reason:

(4.) He has.....all the milk. (drank or drunk)
Reason:

(5.) .....did you see at the meeting? (who or whom)
Reason:

(6.) His work is done.....than hers. (neater or more neatly)
Reason:

GEOGRAPHY. (Time, 2¼ hours.)

33 1. In each blank fill in the word or words needed to make the sentence complete:—

(*a*.) Most of the countries of South America have a..... form of government, while the prevalent language among the people is..... In Brazil, however, ... is generally spoken. The original native people belonged to the..... .....race. The most progressive country is....., which competes with Canada in the production of.....and ..... South American countries lead the world in the production of certain commodities. Brazil is noted for the production of....., Argentina for the production of....., and Chile for the production of..... In South America only one transcontinental railway has been built, the western terminus of which is....., the eastern terminus being.....

(*b*.) Circles passing around the globe parallel to the equator are called..... ..... The North Temperate

Zone lies between the .....and ..... The South Temperate Zone extends from the..... to the..... The latitude of the North Pole is..... The distance between any two consecutive parallels is approximately..... miles. Longitude is measured east and west of the meridian which passes through ..... near ..... Meridians are farthest apart at the..... The only place which has no latitude and no longitude is that point where the..... .....crosses the ..... meridian. When the time at Kamloops, 120 degrees west longitude, is 12 noon, the time at London is..... In Canada we have our longest day on....., while the people of Australia have their longest day on..... The earth rotates on its axis once in.....

(*c.*) The northern part of the Rocky Mountain trench is drained by the .... and ..... Rivers, which unite to form the Peace River. This river breaks through the Rocky Mountains and flows in..... direction to join the.....River system. The chief industry of the Peace River area is the growing of ..... At the present time the development of this district is retarded by the lack of..... facilities.

Prince George is situated at the junction of the Fraser and..... Rivers; Kamloops at the junction of the..... and..... Rivers; and Prince Rupert on Kaien Island near the mouth of the.....River.

The principal industry of the lower Fraser Valley is..... The products of this area are consumed principally in the City of .....

Two centres in British Columbia noted for the manufacture of wood-pulp are .....and .....

(*d.*) The Nile River rises in....., the largest lake in Africa. Much of the water of the Nile comes from rains in the..... Mountains, through its tributaries the..... and the..... The largest dam of its kind in the world has been built across the Nile at..... ..... The chief crop grown on the irrigated lands of this area is.....

(*e.*) Underline the name of the country, state, or province that is the *chief* source of supply of each product listed below:—

Product.	Country.
Gold.	Alaska, Australia, South Africa, Canada.
Silver.	Canada, Mexico, Bolivia, Spain.
Nickel.	Mexico, Chile, Ontario, Nova Scotia.
Tin.	Malay, Alberta, Uruguay, Transvaal.
Asbestos.	Norway, Quebec, Algeria, Queensland.
Diamonds.	Brazil, Spain, Mexico, South Africa.
Petroleum.	Persia, France, United States, Turkey.
Jute.	Jutland, Argentina, Cuba, India.
Pulp and paper.	Sweden, Canada, United States, Russia.
Tea.	China, India, Japan, Greenland.

Value.

(*f.*) Name the principal raw material from which each of the following is manufactured:—

Molasses, ... Rayon, ...
Chocolate, ... Glass, ...
Crockery, ... Binder-twine, ...
Malt, ... Quinine, ...

6 2. Tell in a sentence or two what is meant by each of the following:—

Erosion.
"White coal."
Horizon.
Antipodes.
Doldrums.
Marsupials.

18 3. Give, in a sentence or two about each, brief answers to the following questions:—

(*a.*) Why is the eastern side of the Okanagan Valley more densely wooded than the western side?

(*b.*) What effect would the deepening and widening of the canals of the St. Lawrence River system have upon the commerce of Vancouver?

(*c.*) Why are there so many more lakes in Canada than in the United States?

(*d.*) Account for the frequent fogs in the neighbourhood of Newfoundland.

(*e.*) Why do the channels of trade in China run in an easterly and westerly direction?

(*f.*) Why is the plain of the Ganges River more densely populated than the plain of the Indus?

6 4. Canada derives many benefits from her membership in the British Empire. Mention three such benefits.

25 5. (*a.*) On the map of the world supplied you, ten seaports are represented by the numbers 1 to 10. Write after each of the numbers given below, the name of the seaport that is represented on the map by the number:—

1. ..... 2. .....
3. ..... 4. .....
5. ..... 6. .....
7. ..... 8. .....
9. ..... 10. .....

(*b.*) The numbers 11 to 20 on the map represent other cities. Write after each number the name of the city that is represented on the map by the number:—

11. ..... 12. .....
13. ..... 14. .....
15. ..... 16. .....
17. ..... 18. .....
19. ..... 20. .....

(*c.*) Trade routes are represented on the map by arrows, and ships are marked by letters. Write below after each letter two important products that would probably be carried by the ship that is represented by the letter:—

A. ....
B. ....
C. ....
D. ....
E. ....

Value.

(*d.*) Indicate, opposite each letter in the table below, two products which might be carried on the return voyage of the ship which is represented by that letter:—

A. .....

B. .....

C. .....

D. .....

E. .....

(*e.*) The letters F to P on the map indicate islands. Write after each of the following letters the name of the island, or islands, represented by the letter:—

F. ..... G. .....

H. ..... J. .....

K. ..... L. .....

M. ..... N. .....

O. ..... P. .....

12 6. Write three brief paragraphs on Australia under the following headings:—

(*a.*) Position and surface features;

(*b.*) Three prevailing winds, their direction, and their influence upon the climate;

(*c.*) Industries and the district in which each industry is carried on.

(*a.*)

(*b.*)

(*c.*)

PENMANSHIP AND DICTATION AND SPELLING. (Time, 1½ hours.)

(25 marks for Penmanship and 75 marks for Dictation and Spelling.)

[NOTE.—*The Supervisor shall read Sections A and B to the candidates three times—the first time to enable them to gather the meaning; the second time slowly and clearly in subsections as marked by the bars, allowing all the candidates sufficient time to write the words; and the third time for review. He should repeat words and phrases, when necessary, in order that every candidate may hear distinctly. Punctuation-marks should not be dictated. Candidates are not permitted to rewrite the passages.*]

24 A. Often and often | I have thought of writing something | about the love of my native land, | but was restrained | by the feeling | that it was too intimate | and personal | to be exposed | for the entertainment of the public. | Goodness knows, | I have gossiped | about almost everything | in the most shameless way, | but there was something | about love of the land | that seemed too sacred | to reveal even to intimate friends. | But now I am emboldened | to talk to those of my readers | who have felt the love of the land | and know what it means. | I have the good fortune | to be living on the farm | on which I was born | —the farm which my father cleared. | Although | I was born too late to take a hand | in the work of clearing, | I learned the history of every acre | before an open fireplace | many years ago. | The history of the clearing of the land, | the first crops, | the names and characters | of the horses and cows on the place, | are so interwoven | with my youthful recollections | that I seem to remember them all | as if I had taken part | in the battle with the wilderness myself | and had shared | in all its triumphs and sorrows. |

15 B. "You seem so very strong," | said the king, | "that I am sure | you must be able to grind these millstones." |

Value.

"Oh yes," said the women in a breath, | "we can turn these millstones quite easily. | What shall we grind for you, our King?" |
"Grind out gold," said the king, | "gold in a glittering heap." |
"That we will," said the women, | and baring their great arms | they set to work without delay. |
In a few minutes | there were many glittering piles of yellow gold | on the floor of the barn. |
The king's eyes glistened | as he watched the women, | and when they paused to rest their arms | he cried eagerly, "Grind more, grind more!" |

16 C. The physician | recommended a higher altitude | for the patient. |
The distinctive characteristics | of a true gentleman | are nobility and chivalry. |
The fourth session | of the ninth parliament | opened in February. |
The principle of Responsible Government | received the approval | of a majority of the electors. |
It is important | that each recitation begin | with a short review | of the one immediately preceding it. |
The musician believed | that he could arrange | to practise on his violin | for a brief period every evening. |
These children are inseparable | and they rarely disagree. |
There must not be | a repetition of this occurrence. |

20 D.

wrathful	systematic	clumsily
wouldn't	sympathies	persuasion
worthily	suggestive	ornamental
virtuous	studious	oppression
warriors	specialize	omitted
vigorous	solemnity	mysterious
vicious	insincere	luxurious
unvarying	serviceable	inheritance
unconscious	scenery	injurious
twelfth	ruinous	heroism
typing	irresolute	buried
intemperate	recognition	distribution
harmonious	pursuing	fertility
temporarily		

APPENDIX C.

HIGH SCHOOL EXAMINATION, JUNE, 1930.

Grade IX.

ALGEBRA. (Time, 2 hours.)

Value.

3 1. (*a.*) A girl is x years old now; how old will she be in x years?

2 (*b.*) She is $m+n$ years old now; how old will she be in $m-n$ years?

2 (*c.*) She is $a+b$ years old now; how old was she $a-b$ years ago?

3 2. (*a.*) Express algebraically the number of which the three digits taken in order from right to left are $3l$, $2m$, and $5n$?

3 (*b.*) The digits of a two-figure number are a and b. If a new number is formed by reversing the order of the digits, show that the product of the two numbers is expressed by $10a^2+101ab+10b^2$. Test the truth of this statement by using the number 37.

3 (*c.*) Explain why $a-(b-c)=a-b+c$.

1 3. (*a.*) In the expression $a-\overline{b-c}$, what is the sign of the term b?

3 (*b.*) Classify the terms in $a^4-3a^2b^3+7ab^4-a^2b^2c-8a^2b^3$ according to the following groupings: like terms, homogenous terms, and negative terms.

3 (*c.*) If $a=8-2p^2$, $b=4p+p^2-15$, $c=3p^2-2p+7$, find the value of $\frac{1}{2}a-2b-3c$.

7 4. (*a.*) A school of 720 boys is separated into upper, middle, and lower divisions containing $4(p-5)$, $5(p+6)$, and $3\ p-10$ boys respectively. Find the value of p, and the number of boys in each division.

2 (*b.*) Divide $\frac{1}{2}x^5y^2-3x^3y^4$ by $-\frac{3}{2}x^3y^2$.

2 (*c.*) Simplify by removing brackets and collecting like terms:—

$$14x^4-(5x^4+3x^4)+(7x^4-9x^4)-(8x^4-11x^4).$$

7 5. (*a.*) A father is nine times as old as his son, and three times as old as his daughter. Their combined ages make up 65 years. Find their ages.

6 (*b.*) Write down: (1) the square of $3a^2-4ab$; (2) the product of $7ax^2-4a^2x$ and $7ax^2+4a^2x$; and (3) the product of 198 and 202.

8 (*c.*) When $a=-4$, $b=2$, $c=-3$, and $d=0$, find the value of

$$3ab^3-b^2(2a^2+3b)+2a^2d(2a-b^2+3)-3b^3(a-1).$$

6 6. (*a.*) Subtract $5x^3y-11xy^3+x^4-6y^4-3x^2y^2$ from $8xy^3-2x^3y-5y^4$.

6 (*b.*) What must be added to a^3-b^3 to give a^2b-ab^2?

6 (*c.*) Divide $14a(a-1)-15(a+1)$ by $2a-5$.

9 7. (*a.*) Simplify $2(a+2b)(2a-3b)-(a-2b)(a+3b)-8ab$ and divide the result by $3a+2b$.

9 (*b.*) Divide $\frac{1}{3}x^2+3xy-30y^2$ by $\frac{2}{5}x+6y$.

9 (*c.*) Simplify: $\dfrac{x^3-27y^3}{x-3y}+\dfrac{8x^3+y^3}{2x+y}-\dfrac{x^3+64y^3}{x+4y}$.

ARITHMETIC. (Time, 2 hours.)

[*Write answer on dotted line at end of question. Work need not be shown.*]

Value.

3 1. (*a.*) $14^2/_7\%$ of \$68.25=.....

3 (*b.*) Divide the product of $3\frac{1}{5}$ and $2\frac{1}{2}$ by their difference.....

3 (*c.*) Divide the cube of .1 by the square of .01.....

3 (*d.*) When the cost is $^6/_7$ of the selling-price, what is the gain per cent.?.....

3 (*e.*) The perimeter of a square is .28 metres. Express its area in sq. cm. .....

3 (*f.*) The total area of all the faces of a cube is 216 sq. in. What is its volume? .....

3 (*g.*) 45 km. per hour equals how many dcm. per second?.....

3 (*h.*) Express in its simplest form the ratio of $\frac{3}{5}$ to $\frac{3}{8}$.....

3 (*i.*) 1 ton 5 cwt. is what per cent. of 1,000 lb.?.....

3 (*j.*) If I expend $\frac{2}{3}$ of my money and then $^3/_7$ of what remains, how much of the whole is left?.....

[*The work for this part of the paper must be shown in the space below the question. If you cannot complete the question, work as much as you can.*]

10 2. A rectangular field, whose width is 176 yds., contains 7 ac. 3,080 sq. yds. Find the distance from corner to corner on the diagonal.

10 3. A dealer paid \$31.50 for an article after receiving successive discounts of $12\frac{1}{2}\%$ and 10%. What was the list price?

10 4. A circular fish-pond of 35 yds. diameter is surrounded by a cement walk 21 ft. wide. What is the area of the walk?

10 5. I wish to invest \$1,500 for 2 years. Which is the better investment, a note bearing $4\frac{1}{2}\%$ yearly interest or a savings-bank account bearing 4% interest, compounded semi-annually? How much better?

10 6. Find the proceeds of a note for \$400, drawn Feb. 3, 1929, at 3 months with interest at 5% per annum and discounted at a bank on Feb. 22, 1929, at 8%.

10 7. A man's tax is \$37.80. His property is assessed at 30% of its value and the rate is 15 mills. What is the man's property worth?

10 8. Capital originally invested so as to yield an annual income of \$22,500 at the rate of 9% is reinvested at 10% and the income divided among 3 persons in the ratio of 4:7:9. What is the yearly income of each?

DRAWING. (Time, 2 hours.)

A. Selections from Drawings.

[*The time taken to collect these drawings is not to be deducted from the two hours allowed for this paper.*]

Select the following from the drawings you have made during the past year, and write your distinguishing number at the top right-hand corner of each. Before beginning your drawing give these to the Examiner.

5 1. An example of nature-drawing. (Preferably in colour.)

5 2. An example of lettering. (Should illustrate the use of margins.)

5 3. An example of object-drawing. (Preferably in full light and shade.)

Value.

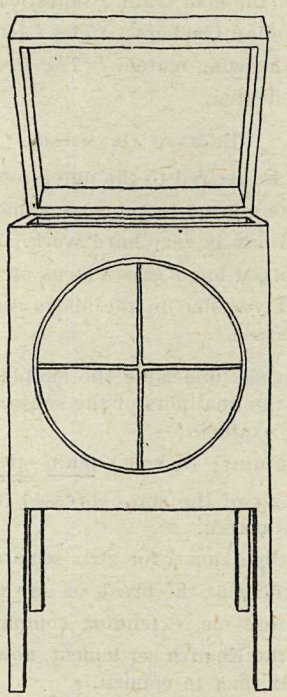
5 4. An example of ornamental design. (Indicate the scheme of colour-harmony employed.)

5 5. A colour-chart.

B. Object-drawing. (Ruling is not permitted in this question.)

30 Below is shown an unshaded, outline drawing of a gramophone as seen from a position directly in front. The top is opened to an angle of 45 degrees. Make a *freehand* drawing of the gramophone as it would appear if it were turned so as to bring the right-hand corner directly opposite your eye.

10 Shade your drawing to show the light falling downward from the left-hand side.



C. Design.

35 Work *one* of the following questions:—

(1.) Design enrichment for a cup and saucer. Draw an elevation of the cup and the plan of the saucer with the ornament applied. Indicate the colours you would use and name the type of colour-harmony produced by the colour scheme.

(2.) Design a poster, as large as your paper will conveniently permit, to announce a basket-ball match between two school teams. The information on the poster should also make clear the time, place, and admission fee.

ENGLISH COMPOSITION AND GRAMMAR. (Time, 2½ hours.)

5 1. Use the following words in sentences of your own: credible; incessantly; terminate; ominous; paltry.

10 2. Make desirable corrections in the following sentences:—

(*a.*) Riding in an elevator always gives me a funny sensation.

(*b.*) Each of the children who visit the bakery are given a tiny cake.

Value.

(*c.*) We saw a man driving a car with only one leg.

(*d.*) The first thing a beginner must learn is to be not afraid of the water.

(*e.*) What kind of a typewriter do you prefer?

10 3. Explain in a short letter to a friend why you will not be able to carry out plans made with him (her) for a summer holiday.

30 4. Write a paragraph (or short essay) on *one* of the following:—

(*a.*) How Alan Breck Stewart secured a passage over the Firth of Forth. (*Kidnapped.*)

(*b.*) The capture of the gold train. (*Westward Ho!*)

(*c.*) The skill of Indian trackers. (*The Last of the Mohicans.*)

(*d.*) The hammer-throwing match. (*The Broad Highway.*)

(*e.*) A visit to the dentist.

ENGLISH GRAMMAR.

10 1. (*a.*) Having said this, he retired to the outer room.

(*b.*) The desire to make a large fortune overcame any scruples.

(*c.*) Mixing mortar all day is very hard work.

(*d.*) The open and relaxed hand gave tokens of the most profound repose.

Write the phrases that you find in the above sentences and state the kind and the relation of each phrase.

10 2. In the following sentences, underline the simple subject once, the simple predicate twice, and bracket the qualifiers of the subject and the modifiers of the predicate as in the following example:—

[Between the mountains] (a vast) plain stretches [northward].

(*a.*) The terrific heat of the sun oppressed the army of the Romans during the long day's march.

(*b.*) Once upon a time games for girls seemed unladylike.

(*c.*) The next morning at the break of day the battle began in terrible earnest.

(*d.*) There lay before me, extending completely across my path, a huge tree.

(*e.*) The heads of the English settlement, now thoroughly alarmed by the success of Dupleix, met in council.

15 3. (*a.*) If he calls, say that I am busy.

(*b.*) The man to whom he gave the money was willing to return it when he discovered that a fraud had been committed.

In each of the above cases, state the kind of sentence (i) according to form, (ii) according to use.

Write the separate clauses in full.

Explain the relationship of each subordinate clause.

10 4. (*a.*) The life of a hunter has no attractions for me.

(*b.*) What to say at such a time was a puzzle.

(*c.*) Praising a man is not always to his benefit.

(*d.*) To start in business without capital is almost impossible.

(*e.*) In the evening he read the newspaper.

Copy the above sentences, underline the subject in each case, and in each case state the kind of subject.

ENGLISH LITERATURE. (Time, 2 hours.)

[*Candidates will write on Section A; and* either *Section B*, or *Section C*, or *Section D*, or *Section E.*]

SECTION A.

Narrative English Poems.

Value.

4 1. (*a.*) The form of the ballad is rhythmical and suggests singing. Quote a verse from one of the ballads you have read which illustrates this statement. Comment on any devices which the poet uses to gain this effect.

6 (*b.*) The story of the ballad is generally simple. Give briefly in your own words the story of "Sir Patrick Spens."

2 (*c.*) There is much use of the supernatural in ballads. Refer definitely to an example of the use of the supernatural in one of the ballads you have read.

10 2. Describe how the curse was gradually lifted from the Ancient Mariner.

8 3. Comment briefly on the treachery of Tim, the ostler, in "The Highwayman."

10 4. Show how the peasant girl in "The Italian in England" was a patriot.

12 5. Name the poems from which the following extracts are taken and explain each passage carefully:—

(*a.*) And the burning ship drove on—
Like a meteor of the air.

(*b.*) But misery still delights to trace
Its semblance in another's case.

(*c.*) The guilt of blood is swift and dread.

(*d.*) The gemmy bridle glitter'd free,
Like to some branch of stars we see
Hung in the golden Galaxy.

SECTION B. KIDNAPPED.

16 1. Answer briefly the following questions:—

(*a.*) Why did Ebenezer Balfour wish to get rid of David?

(*b.*) What was the cause of the quarrel between Alan and David?

(*c.*) Why was Mr. Rankeillor so discreet?

(*d.*) For what purpose was the gold intended that Alan carried in his belt?

16 2. Write a paragraph giving your opinion of *one* of the following:—

(*a.*) Captain Hoseason.

(*b.*) Mr. Riach.

(*c.*) James of the Glens.

16 3. Describe briefly *one* of the following:—

(*a.*) The death of the Red Fox.

(*b.*) David Balfour's first reception by his Uncle Ebenezer.

(*c.*) David Balfour's experiences on the islet.

SECTION C. WESTWARD HO!

16 1. Answer briefly the following questions:—

(*a.*) What enabled the English always to conquer vastly superior Spanish fleets?

(*b.*) Why had Amyas to leave school?

Value.

(*c.*) What reasons did the merchant Salterne have for remorse?

(*d.*) How did John Brimblecombe prove his valour?

16 2. Write a paragraph giving your opinion of *one* of the following:—

(*a.*) Eustace Leigh.

(*b.*) Salvation Yeo.

(*c.*) Ayacanora.

16 3. Describe briefly *one* of the following:—

(*a.*) John Brimblecombe's adventure with the sharks.

(*b.*) The escape of the Jesuit spies.

(*c.*) The Brotherhood of the Rose.

SECTION D. THE LAST OF THE MOHICANS.

16 1. Answer briefly the following questions:—

(*a.*) Why did Uncas hate the English?

(*b.*) How did the Hurons cover up their tracks?

(*c.*) On what occasions did the singing-master narrowly escape death?

(*d.*) What led the Delawares to recognize Uncas as a friend?

16 2. Write a paragraph giving your opinion of *one* of the following:—

(*a.*) The Singing-master.

(*b.*) Le Renard Subtil.

(*c.*) Hawkeye.

16 3. Describe briefly *one* of the following:—

(*a.*) The skill of Indian trackers.

(*b.*) The escape of Uncas and Hawkeye.

(*c.*) The death of Magua.

SECTION E. THE BROAD HIGHWAY.

16 1. Answer briefly the following questions:—

(*a.*) Into what dangerous situations did Peter's likeness to his cousin lead him?

(*b.*) What did Peter inherit in his uncle's will?

(*c.*) What reconciled Black George to Peter?

(*d.*) Why was the Ancient disappointed when he saw Peter after the night in the cabin?

16 2. Write a paragraph giving your opinion of *one* of the following:—

(*a.*) The Ancient.

(*b.*) The Literary Tinker.

(*c.*) Sir Maurice Vibart.

16 3. Describe briefly *one* of the following:—

(*a.*) The Tinker's theories concerning the writing of a good novel.

(*b.*) The duel.

(*c.*) The adventure in the Haunted House.

FRENCH. (Time, 2 hours.)

Value.

20 1. (*a.*) Answer the following questions in French in complete sentences:—

(1.) Dans quelle province est Vancouver?
(2.) Où est New York?
(3.) Pourquoi ouvrez-vous la fenêtre?
(4.) Que voit-on au marché? (Mention 5 things.)
(5.) Où y a-t-il du café?
(6.) Y a-t-il du lait dans le café noir?
(7.) Combien font neuf fois neuf? (Answer in words, not in figures.)
(8.) Dans quelle saison chantent les oiseaux?
(9.) Dans quelle saison neige-t-il?
(10.) A quoi jouez-vous quand il fait beau?

5 (*b.*) Ask questions to which the following are answers:—

(1.) Il est midi.
(2.) Jean est à l'école.
(3.) J'ai quatorze ans.
(4.) Ma plume est verte.
(5.) Mon crayon est en bois.

5 2. Complete in French:—

(1.) La fille de mon oncle est ma.....
(2.) Henri est le.....de son oncle.
(3.) Monsieur Durand est le.....de Madame Durand.
(4.) Les trottoirs sont.....deux côtés de la rue.
(5.) André n'est pas.....grand que son frère.
(6.) Regardez.....la fenêtre.
(7.) Les Américains demeurent.....l'Amérique du Nord.
(8.) Les Japonais demeurent.....Japon.
(9.) Les habitants de la Chine parlent.....
(10.) "Beaucoup" est le contraire de.....

10 3. Use each adjective with the noun corresponding, paying attention to order and agreement:—

(1.) Une poule (beau).....
(2.) Des boîtes (carré).....
(3.) De la soupe (chaud).....
(4.) Une abeille (léger).....
(5.) Une rose (pareil).....
(6.) Une gomme (mauvais).....
(7.) Une brosse (plat).....
(8.) Une vache (vieux).....
(9.) Une fraise (mou).....
(10.) Des yeux (bleu).....

10 4. Copy the following sentences, putting the verbs in brackets in the proper form:—

(1.) Je (s'asseoir) sur mon banc.
(2.) Les garçons (lire) dans leur livre.
(3.) Nous (bâtir) une petite maison.

Value.

(4.) Vous (faire) des exercices physiques.
(5.) (Entendre)-il la voix du professeur?
(6.) Vous vous (appeler) Jacques.
(7.) Nous (écrire) des mots.
(8.) Vous n'(être) pas à la maison.
(9.) Ces élèves (aller) au cinéma.
(10.) Jean, (avoir)-il son chapeau?

20 5. Translate into French:—
(1.) It is half-past nine.
(2.) One thousand chairs.
(3.) His teeth are white.
(4.) Some one is coming.
(5.) This tree and that tree.
(6.) My boots and shoes.
(7.) It is a silk handkerchief.
(8.) In August; in the month of July.
(9.) Good morning, sir; how are you?
(10.) Sit down, please.

10 6. Arrange the words below in the proper order and add what is necessary to make a complete sentence; give the English of your sentences.
(1.) En général, ne, pas, mets, sucre, thé.
Sentence .....
Meaning .....
(2.) Assises, Lucie, côté, sont, à, professeur, Marie.
Sentence .....
Meaning .....
(3.) Vous, aller, Jean, tournez, chez, pour, droite.
Sentence .....
Meaning .....
(4.) Quelques, poche, j'ai, ficelle, un peu, bonbons.
Sentence .....
Meaning .....
(5.) Crayon, assez, écrire, mon, pointu, est.
Sentence .....
Meaning .....

6 7. After reading carefully the following passage, answer the questions about it *in English*:—

Le petit Henri n'est pas un très bon élève. Un jour son oncle lui demande: "Quelle place as-tu dans ta classe?" Henri rougit, hésite, et répond enfin: "Si je monte d'une place, mon oncle, **je serai* l'avant-dernier."

**je serai*=I shall be.

(1.) What does Henry's uncle wish to know?
(2.) What does Henry do before answering?
(3.) Translate the last sentence.

14 8. Write *in French* a short composition, of not less than fifty words, describing your own family (or any other family you know):—

Suggestions.

Title: Ma Famille.

Paragraph I.: Enumerate the members of your family, beginning, "Dans ma famille, il y a....."

Paragraph II.: Say something about each member of your family, tell where each one now is and what he is doing; e.g., "My mother is in the garden where there are pretty red roses."

Paragraph III.: Finish by saying that you like your own family and explain why very simply.

GENERAL SCIENCE. (Time, 2 hours.)

[*Questions are of equal value. Answer* five *only.*]

1. (*a.*) Name the gases of which pure air is composed.
   (*b.*) In order to push a loaded wheelbarrow a man exerts a steady force of 48 pounds. If he wheels the load a distance of 280 yards, how much work does he do?
   (*c.*) Give examples of the effects of slow oxidation. How may it be prevented?

2. (*a.*) Explain fully how a refrigerator keeps food from spoiling.
   (*b.*) Give *three* examples to illustrate the fact that man to a certain extent can control his environment, and *four* examples to illustrate the fact that plants and animals adapt themselves to their environment.
   (*c.*) How do forests affect the water-supply of a district?

3. (*a.*) Define the following terms: Matter, Energy, Work, Inertia, Friction.
   (*b.*) Describe what you would consider to be the best way properly to ventilate a room. Give reasons for your answer.
   (*c.*) Give *three* examples of bacteria which are helpful and *two* examples of those which are harmful. State *three* ways in which harmful bacteria may be kept in check.

4. (*a.*) An electric iron takes a current of 4.5 amperes at a pressure of 110 volts. How much does it cost to operate the iron for 25 minutes if the energy costs 6 cents per kilowatt-hour?
   (*b.*) Why are houses wired in parallel?
   (*c.*) Write a note on the *nature*, *prevention*, and *control* of tuberculosis.

5. (*a.*) What is a seed?
   (*b.*) Name the principal parts of a mature flowering plant, and state the functions of each part.
   (*c.*) Define the following terms: photosynthesis, transpiration, digestion.

6. (*a.*) Name the parts of the brain and give the functions of each part.
   (*b.*) How does the body defend itself against disease?
   (*c.*) State several ways in which we can help the body to resist disease.

7. (*a.*) Make a list of the various food materials which you consider would form a properly balanced diet for a high-school student for one day. Tell why each article has been included.
   (*b.*) A person eats a meal consisting of protein, starch, and fat. Trace the changes which take place in the digestible portion of the food from the time it enters the mouth until it is taken into the blood.

GEOMETRY. (Time, 2½ hours.)

[NOTE.—*No proof is required for any construction on this paper. Constructions must be neat and accurate and the figures should show, by construction lines, the method used in making the various diagrams. Letter all diagrams neatly, using printed capitals.*]

Value.

8 1. (*a.*) Construct the triangle ABC, making AB=2.5 inches, BC=3 inches, and CA=2 inches.

8 (*b.*) Draw AX, BY, and CZ perpendicular to BC, CA, and AB respectively. AX and BY intersect at O.

6 (*c.*) Bisect AO and BO at L and M respectively.

8 (*d.*) Bisect AB, BC, and AC at F, D, and E respectively.

2. Draw any triangle DEF.

4 (*a.*) Bisect angle EDF by DK meeting EF at K.

6 (*b.*) Through K draw KM and KN parallel to ED and FD respectively, meeting FD in M and ED in N.

4 (*c.*) Bisect DK at T and join M and N.

6 (*d.*) Bisect KM and KN at X and Y respectively. Through X and Y draw straight lines perpendicular to KM and KN respectively and let these perpendiculars meet at R.

14 3. Draw any acute angle A. At a short distance from this angle draw a triangle PQR, having angle PQR=angle A and the sides QP and QR 2 inches and 1½ inches respectively. Measure the length of PR.

20 4. Draw two acute angles X and Y, making angle X what you think is about 35 degrees and Y about 70 degrees. Take a line 2.4 inches long and on this line as base draw a triangle having an angle at one end of this given line equal to angle X, and the angle opposite to this given line equal to angle Y.

16 5. Draw the right-angled triangle ABC, making the right angle at B and having BA=3 inches. The hypotenuse AC is to be 5 inches long. Measure the length of the remaining side BC.

LATIN. (Time, 2 hours.)

10 1. In the left-hand column there are forty Latin words, opposite each of which are four English words. One of these four words gives the correct English word for the given Latin word. Underline for each Latin word the English word which you think best gives its meaning, according to the following example:—

mensa	month	<u>table</u>	immense	mensuration

If you place your ruler across the line and then rule the appropriate word, you will be able to run down the page more rapidly.

1. insula	insular	island	inhabitant	insulate
2. populus	popular	population	popularity	nation
3. quot	how many	who	what	how big
4. porta	to carry	I carry	gate	porter
5. ludus	school	games	we play	ludicrous
6. sedeo	I am seated	seditious	sediment	sedentary
7. doceo	docile	I learn	I teach	document
8. patria	patriot	father	native-land	patriotic
9. unus	one	universal	unit	union

Value.

	10. aqua	equal	water	aquatic	aqueduct
	11. ambulo	ambulance	I walk	ramble	perambulator
	12. servus	servile	servitude	slave	I serve
	13. supero	superior	above	superlative	I overcome
	14. verbum	verb	verbosity	verbal	word
	15. exspecto	expectation	I expect	I look at	I wait for
	16. longe	long	lengthy	far	length
	17. monstro	I remonstrate	monster	I show	demonstrate
	18. liberi	books	liberty	library	children
	19. propero	proper	I hurry	I propose	near
	20. disco	I teach	disc	I learn	I speak
	21. scribo	scribe	I write	script	scribble
	22. consido	I consider	I decide	I sit down	sedition
	23. ceteri	et cetera	chalk	the rest of	cretaceous
	24. appello	appellation	I name	I shout	I compel
	25. impero	imperial	power	I give orders	command
	26. absum	I am absent	absent	abscess	far away
	27. locus	local	talk	place	loquacity
	28. libenter	book	willingly	library	liberal
	29. nomen	name	I remain	early	nominal
	30. pes	foot-soldier	pedal	foot	space
	31. possum	position	I place	possible	I am able
	32. cur	why	dog	curious	cure
	33 miles	space	soldier	miles	distance
	34. caput	he takes	captured	capital	head
	35. iterum	again	interior	march	iterate
	36. mane	badly	name	early	I remain
	37. tempus	temple	time	tempest	temporal
	38. maneo	early	name	I remain	permanent
	39. eques	horse	equine	cavalry-man	equal
	40. incendo	I ascend	incendiary	I set on fire	incense

3 2. Underline the word or phrase which most correctly completes the sentence.

(*a.*) A vilicus was

a boy's personal attendant, the steward of a large estate, a cavalry-man.

(*b.*) In Rome the teacher was paid by

a group of men interested in education, the senate, the parents of the pupils.

(*c.*) The "hub of Rome" was

the Capitolium, the Forum, the Circus Maximus.

(*d.*) The mightiest of the Roman deities was

Mars, Jupiter, Apollo, Neptune.

(*e.*) A paedagogus was

a school-master, a god, a boy's personal attendant, a door-keeper.

(*f.*) The Romans felt that they "were of the race of Mars" because

Mars was the god of war, the people decided questions of peace and war on the Campus Martius, Rome was the greatest military state in the world, Romulus was the son of Mars.

Value.

7 3. Place in the parentheses before each Latin word the number of the English phrase or group of words in the column on the right which translates the given Latin word or words.

( ) quid facis?	1. you learn.
( ) appropinquaverunt	2. are you going to the games?
( ) iit	3. what are you making?
( ) isne ad ludos?	4. you are speaking.
( ) vis	5. he went.
( ) vidimus	6. by roads.
( ) mihi date	7. give me.
( ) viis	8. you are doing.
( ) discis	9. you want.
( ) liberi nigri	10. he goes.
( ) dicis	11. do you go to school?
( ) nostro gladio	12. by means of our sword.
( ) nobiscum	13. they were taught.
( ) docti sunt	14. you do speak, don't you?
	15. we have seen.
	16. you are teaching.
	17. we see.
	18. the black books.
	19. they have been led.
	20. with us.
	21. the black children.
	22. they approached.

5 4. In each example printed below underline that one of the words or phrases following each sentence which means the same or most nearly the same as the italicized word in the sentence. Also fill in the blank with the Latin word from which the italicized word is derived.

(*a.*) The vassal paid *homage* to his overlord.

money, goods in kind, fealty.

homage is derived from the Latin word.....

(*b.*) *Colloquial* expressions should not be used frequently.

slang, foreign idioms, local expressions.

colloquial is derived from the Latin word.....

(*c.*) The *corpses* of the slain were piled in a heap.

bodies, armour, weapons, clothes.

corpses is derived from the Latin word.....

(*d.*) By his mother Achilles was not considered *vulnerable.*

handsome, unable to be wounded, able to be wounded.

vulnerable is derived from the Latin word.....

(*e.*) The candidate was *nominated* by his party.

called, named, defeated.

nominated is derived from the Latin word.....

[NOTE.—*Do not translate these Latin paragraphs into English. See questions below.*]

10 5. The questions printed in Latin below relate to the Latin paragraphs. Read the Latin carefully and then write in *English* the answers to the questions below.

Value.

Media in arena est murus. Longus est murus, sed non altus. Romani murum quem media in arena videtis, spinam appellant. Videtisne spinam? Spina Circi Maximi columnis et statuis est ornata. Prope terminum spinae sunt tres columnae. Has columnas Romani metas appellant. Videtisne metas? Metae terminum spinae aurigis monstrant cum curriculum equorum in Circo est.

Nunc consul mappa alba signum dat. Statim quattuor quadrigae in arenam currunt. Quam pulchri sunt equi! Quam validi! Nunc spectatores ex subselliis surgunt, nunc clamant, nunc aurigas incitant.

Albata primum locum tenet, sed primum locum diu tenere non potest. Russata enim equos incitat, nunc albatam superat, nunc prima est russata. Sed prasina tertio in loco celeriter venit. Nunc albatam superat, nunc russatam quoque superat, nunc prima currit.

Sextus autem venetam semper incitat. Nunc circum spinam cursu ultimo currunt. Ecce, nunc denique auriga Sexti equos incitat. Albatam russatamque superat. Nunc aequatis jugis veneta et prasina currunt. Ecce, nunc veneta est prima.

"Veneta superat! Veneta palmam fert!" clamant spectatores.

(*a.*) Quid est media in arena?

(*b.*) Quibus rebus (things) spina ornata est?

(*c.*) Quod nomen Romani columnis prope terminum spinae positis dederunt?

(*d.*) Qua re signum aurigis dat?

(*e.*) Quid faciunt spectatores ubi equi arenam intrant?

(*f.*) Primo (at first) quis primum locum tenet?

(*g.*) Quem aurigam Sextus incitat.

(*h.*) Quo tempore auriga Sexti equos incitat.

(*i.*) Quis palmam fert?

(*j.*) Quid spectatores clamant?

6. Translate into Latin:—

1 (*a.*) How large are Italy and Greece?

1 (*b.*) The natives of ancient Gaul were uncivilized.

2 (*c.*) Girls, look at the black horse.

2 (*d.*) Are you hurrying to school, Marcus and Lucius?

2 (*e.*) They did not see the beautiful buildings of the Roman Forum, did they?

2 (*f.*) Was the charioteer able to urge on the horses?

1 (*g.*) I wanted you to go with us to the games.

2 (*h.*) There are many races of men in Europe.

2 (*i.*) We worship Minerva, the goddess of wisdom, don't we?

2 (*j.*) The teacher gave the boys instructions and they obeyed her.

2 (*k.*) Learn the new words and recite them to me, Anna.

2 (*l.*) In the temples built by the Romans were many statues of the mighty gods.

2 (*m.*) Fortified cities often were captured by us in these wars.

2 (*n.*) We wrote to him but he did not answer us.

2 (*o.*) Caesar with many foot-soldiers approached the captured town.

3 (*p.*) With what did a Roman soldier fight? He fought with sword and spear.

3 (*q.*) The city was fortified by the inhabitants with a high wall because Caesar was not far distant.

12 7. Translate the following paragraphs into English and explain the cases of the italicized words:—

(*a.*) Flaccus et Sextus in viam properant et per vias angustas ad Circum Maximum eunt. Nunc appropinquant, nunc ad Circum veniunt, nunc

Value.

lata porta intrant, nunc in subselliis sedent. Quadrigae autem nondum sunt in arena. Flaccus et Sextus viros et pueros qui circum eos sedent spectare incipiunt.

lata porta .....

(*b.*) Multa sunt genera hominum, alia clara, alia barbara. Genus autem Romanum est clarissimum. *Genori* Romano dei imperium in ceteros populos dederunt. Cur milites Romani ceteros populos superare potuerunt? Semper superaverunt quod dei nos ceteros populos imperio regere voluerunt.

generi .....

(*c.*) Hoc oppidum, altis muris munitum, a Romanis oppugnatum est. Romani id prima oppugnatione capere non potuerunt. Itaque oppidum obsederunt. Nunc iterum oppidum obsessum oppugnant. Sed Galli nondum superati sunt. Quam fortiter *Romanis* resistunt! Quis enim liber esse non vult? Quis vult servus Romanis esse?

Romanis .....

8 8. Give the first person plural present indicative of *absum*.....

third person plural perfect indicative passive of *duco*.....

second person plural present imperative active of *rego*.....

third person plural present indicative active of *facio*.....

third person singular present indicative active of *eo*.....

second person plural perfect indicative active of *disco*.....

first person plural perfect indicative of *possum*.....

second person singular present indicative of *volo*.....

8 9. Give the nominative plural of *hoc caput*.....

dative singular of *auriga altus*.....

genitive plural of *quae urbs*.....

vocative singular of *Lucius bonus*.....

accusative singular of *flumen longum*.....

ablative singular of *liber ruber*.....

accusative plural of *homo liber*.....

ablative plural of *nomen magnum*.....

4 10. Complete the statements.

(*a.*) Two examples of first declension nouns which are not feminine in gender are.....and.....

(*b.*) The case which expresses the complement is the.....

(*c.*) The case which expresses the indirect object is the.....

(*d.*) The case which corresponds to our nominative of address is the.....

(*e.*) The case which expresses means is the.....

(*f.*) If a question may have either "yes" or "no" for an answer, the enclitic used is.....

(*g.*) If a question definitely expects "no" for an answer, it is introduced by .....

(*h.*) If a question definitely expects "yes" for an answer, it is introduced by .....

(*i.*) The preposition *ex* governs the.....case.

(*j.*) The preposition *circum* governs the.....case.

(*k.*) The preposition *de* governs the.....case.

Value.

(*l.*) The preposition *sine* governs the.....case.

(*m.*) The preposition *post* governs the.....case.

(*n.*) The preposition *ultra* governs the.....case.

(*o.*) Nouns ending in "—men" in the nominative singular change the "e" to "....." in the genitive singular.

SOCIAL STUDIES. (Time, 2 hours.)

[*Answer* four *questions;* two *from each part.*]

PART A.

25 1. (*a.*) The achievement of responsible government in Canada was a great advance in British colonial policy. Explain this statement.

(*b.*) Define the following terms: dominion, crown colony, protectorate, mandated territory, empire.

(*c.*) What important changes have taken place in India under British rule?

25 2. (*a.*) Compare the Witenagemot and the Great Council.

(*b.*) Why was the parliament of Edward I. called the Model Parliament?

(*c.*) Name five gains made by Parliament in its growth during the Hundred Years War.

(*d.*) Briefly outline two of the principal sources of trouble between Parliament and the Stuart kings.

(*e.*) What were the results of the First Reform Bill?

25 3. (*a.*) Point out (i) the natural and geographic advantages of the district in which you live; (ii) some of the industries and occupations.

(*b.*) Explain the terms: (i) statute and common law; (ii) civil law and criminal law.

(*c.*) Write very briefly on the subject of Fire Prevention.

(*d.*) Tell something of the opportunities for employment associated with any two of our outstanding B.C. industries.

PART B.

25 1. (*a.*) (i.) Write briefly on the contributions to civilization made by prehistoric man. (ii.) Whence does the historian get his material on prehistoric man?

(*b.*) "The Phoenicians were missionaries of culture." Explain this quotation, and tell something of the culture of which they were missionaries.

25 2. (*a.*) Describe the course of Egyptian history leading to the establishment of the Kingdom of Menes, 3400 B.C.

(*b.*) (i.) Write a geographical description of (*a*) "the Nile and Egypt"; (*b*) "the Land of the Two Rivers." (ii.) Point out any resemblances. (iii.) In what way were these two lands peculiarly fitted to become the cradles of civilization?

25 3. Write brief notes on: (i) the Economic Reforms of Solon; (ii) Spartan discipline; (iii) the work of Phidias; (iv) Marathon; (v) Failure of Greek states to build a united nation.

25 4. (*a.*) Briefly describe the Athenian Empire in the time of Pericles, using the following topics: extent, government.

(*b.*) What were the limitations to Greek culture?

25 5. (*a.*) Write concisely on Alexander's attempted "Merging of East and West."

(*b.*) The Epicureans and the Stoics.

(*c.*) Libraries and Museums.

Grade X.

AGRICULTURE. (Time, 2 hours.)

[*Candidates will answer question* 1 *and any* five *of the remainder.*]

Value.

20 1. In what succession (rotation) would you arrange the following garden crops and how would you divide a yearly application of stable manure at the rate of 30 tons per acre to: (1) peas and beans; (2) potatoes; (3) beets and carrots; (4) cabbage, cauliflower, and brussels sprouts.

16 2. What is the origin of soil and which agencies have been chiefly responsible for present-day soil formations?

16 3. State the considerations which would determine your choice of different varieties of peas, beans, carrots, beets, and other vegetables.

16 4. Give the life-history of (1) the tent-caterpillar and (2) the cabbage or onion maggot-fly, together with remedial measures against attacks from these insects.

16 5. Why do bees swarm? What is the object in preventing undesirable swarming and how may it be prevented?

16 6. Describe and compare the four main breeds of dairy cattle common to this Province.

16 7. What are the main causes of success in poultry-keeping?

16 8. Under what conditions is pruning (1) important, (2) undesirable?

ALGEBRA. (Time, 2 hours.)

4 1. A path half a mile long is to have a stone curb made on each side of it. The curb-stones are b inches long and c of them have already been supplied. How many more are needed?

4 2. There are x gallons of oil remaining in an oil-drum from which y quarts have leaked out. Express the leakage as a percentage of the original contents of the drum.

5 3. The area of a triangle whose sides are a, b, and c is

$$\sqrt{s(s-a)(s-b)(s-c)} \text{ where } s=\frac{a+b+c}{2}.$$

Calculate the area of a triangle whose sides are 13, 14, 15 inches.

7 4. Given that $\frac{a+b}{3}=\frac{a-b}{6}+3\frac{1}{2}$, find the value of a in terms of b, and give the numerical value of a: (1) when $b=3$, (2) when $b=8$, (3) when $b=0$.

8 5. Given that $a^3+b^3+c^3-3abc=(a+b+c)(a^2+b^2+c^2-ab-bc-ca)$, express $x^3+8y^3+27z^3-18xyz$ as the product of two factors. What does the original equation (identity) become if for c we substitute $-c$?

5 6. Two of the four factors of a^6-b^6 are (a^2+ab+b^2) and (a^2-ab+b^2). What are the other factors?

17 7. Express as the product of two or more factors:—

(*a.*) $a^3-a^2b-2ab^2$.

(*b.*) $a^3-a^2b-ab^2+b^3$.

(*c.*) $a^2-2b^2+ab+ac-bc$.

(*d.*) $x^2(x^2-1)-y^2(y^2-1)$.

Value.

10 8. Simplify and reduce to its lowest terms:—

$$\frac{x-1}{x^2+4x+3}-\frac{1}{x^2-1}+\frac{x+1}{x^2+2x-3}.$$

10 9. Solve:—

$$x+\frac{3x-10\frac{1}{2}}{5}=11\tfrac{1}{2}-\frac{5x-8\frac{1}{5}}{3}.$$

10 10. Solve:—

$$3x+1\tfrac{1}{2}y=2z-\tfrac{1}{2}.$$
$$y+z=3\tfrac{1}{3}x.$$
$$z+2x=4\tfrac{1}{3}y.$$

10 11. Find the highest common factor of $x^3-7x^2+14x-8$ and x^3-6x^2-x+6, and reduce $\frac{x^3-7x^2+14x-8}{x^3-6x^2-x+6}$ to its lowest terms.

10 12. Gold loses $\frac{1}{19}$ of its weight and silver loses $\frac{1}{10}$ of its weight when weighed in water. Find the amount of each metal in a mass of gold and silver which weighs 10.8 ounces in air and 9.9 ounces in water.

ARITHMETIC. (Time, 2 hours.)

[*Write answer on dotted line at end of question. Work need not be shown.*]

3 1. (*a.*) An agent charged \$63 for collecting debts of \$2,520. Find his rate of commission.....

3 (*b.*) Give the formula for finding the area of a triangle, the lengths of the three sides being given.....

3 (*c.*) Express in its simplest form the ratio of .001 km. to 50 mm.....

3 (*d.*) How many board-feet are there in a board 18 ft. long, 10 in. wide at the narrow end and 14 in. at the other, and ¾ in. thick.....

3 (*e.*) What is the price of stock when 3½% stock pays 5% on the investment? .....

3 (*f.*) .000084 cu. m. is what per cent. of 24 cu. cm.?.....

3 (*g.*) .035 is ⅝ of what?.....

3 (*h.*) The interest on a sum of money in 3 yrs. 6 mos. is $^7/_{22}$ of the sum. Find the rate per cent.....

3 (*i.*) Name the unit of capacity of the metric system of liquid measure and give its volume.....

3 (*j.*) Find a mean proportional between 9 and 144.....

[*The work for this part of the paper must be shown in the space below the question. If you cannot complete a question, work as much of it as you can.*]

10 2. A retailer sold a wagon for \$131.25 at a gain of 25%. The wholesaler from whom he bought realized a gain of 20%, and the manufacturer from whom the wholesaler bought gained 16⅔%. What did it cost the manufacturer?

10 3. The outer diameter of an iron pipe 7 ft. long is 14 in. and the iron is 2 in. thick. How many cubic feet of iron are there in the pipe?

10 4. Two ships leave the same port at the same time. One travels due north at the rate of 18 miles per hour and the other due east at the rate of 13.5 miles per hour. How far are they apart at the end of 6 hours?

Value.

10 5. A person invests $6,825 in a 3-per-cent. stock at 91. He sells out $5,000 stock when it has risen to 93½ and the remainder when it has fallen to 85. He invests the proceeds in 4½-per-cent. stock at par. What is the difference in his income? (No allowance for brokerage.)

10 6. A house and lot cost $4,500, the value of the house being $3,600. The house is insured for ¾ of its value at ⅘%, and repairs for the year cost $40. The property is assessed for 66⅔% of its value, and the tax rate is 18 mills. What rent per annum must be received in order to realize 5% on the investment?

10 7. Two settlers own adjoining farms of 3,000 and 5,000 acres respectively. They unite their farms, taking at the same time an additional partner who pays them $24,000, on the understanding that ⅓ of the land shall in future belong to each of the three partners. How is the $24,000 to be divided between the original owners?

10 8. On March 4th a merchant received notice of a draft for $1,968 which he must pay at once. His bank agreed to furnish the money on receipt of his note drawn for 70 days, discounted at 8% per annum.

(*a.*) For what amount must he draw up the note?

(*b.*) On what date does the note fall due?

(*c.*) What yearly rate of interest will the bank make on its loan?

BOTANY. (Time, 2 hours.)

[*Questions are of equal value.*]

1. Describe the fruits of a plant belonging to each of the families, Ranunculaceæ, Cruciferæ, Leguminosæ. Compare their structures and follow the origin of each from the parts of the flower.

2. Classify fruits according to their methods of dehiscence and methods of distribution, giving at least one example of each class.

3. Describe the flower of a plant which is insect-pollinated and show how the structure of the flower is related to pollen distribution.

4. Name three plants which grow in bogs and three which grow on rocky slopes. In what respects does each habitat present unusual conditions of life, and in what ways do the plants named relate themselves to these unusual conditions?

5. Of what use is water to plants? How do land plants obtain water, and what becomes of the water which they absorb?

CHEMISTRY. (Time, 2 hours.)

Value.

6 1. (*a.*) State the Law of Definite Proportions and the law of Multiple Proportions.

6 (*b.*) Sulphur dioxide is 50 per cent. sulphur and 50 per cent. oxygen by weight. Sulphur trioxide is 40 per cent. sulphur and 60 per cent. oxygen by weight. Show how these facts illustrate each of the above laws.

10 2. (*a.*) Name five types of chemical reaction. Give an equation illustrating each type.

5 (*b.*) Write out a definition of each of the following technical terms as used in chemistry: element, compound, catalyst, melting-point, absolute zero.

3 (*c.*) Write formulæ for the following: magnesium oxide, aluminium chloride, silver nitrate.

Value.

10 3. (*a.*) Complete and balance the following equations. Name the substances formed in each case.

(*a.*) $KOH+HCl=$

(*b.*) $NaOH+H_2SO_4=$

(*c.*) $Ca(OH)_2+H_2SO_4=$

(*d.*) $Ba(OH)_2+HNO_3=$

(*e.*) $Al(OH)_3+HCl=$

5 (*b.*) The atomic weight of a certain metal is 52. By experiment it is found that 26 grams of this metal replace 1 gram of hydrogen from hydrochloric acid. What is the valence of the metal in this displacement?

6 4. (*a.*) Describe a laboratory method for the preparation of carbon dioxide. Illustrate with a diagram.

2 (*b.*) Write an equation for this reaction.

4 (*c.*) How could you distinguish between carbon dioxide and carbon monoxide?

6 5. (*a.*) What are the characteristic properties of water solutions of (1) acids, (2) bases?

4 (*b.*) Write the equation for the neutralization of sodium hydroxide by hydrochloric acid. Name the substances formed.

6 (*c.*) State the Law of Conservation of Matter. Describe briefly an experiment which illustrates it.

4 6. (*a.*) How many grams of hydrogen can be prepared by treating 13 grams of zinc with an excess of hydrochloric acid?

4 (*b.*) What volume will the mass of dry hydrogen occupy at 27° C. and 700 mm. pressure?

Atomic weights: Zn=65; H=1.

One litre of hydrogen at N.T.P. weighs 0.09 grams.

6 (*c.*) Describe, with diagram and equation, the reduction of copper oxide by hydrogen.

4 7. (*a.*) Why do we consider air to be a mixture and not a compound?

5 (*b.*) Name five normal components of the air.

4 (*c.*) Name four of the chief factors in the air which affect human comfort.

ENGLISH COMPOSITION. (Time, 2 hours.)

10 1. Write sentences that illustrate clearly the difference in meaning between:—

(*a.*) Principal and principle.

(*b.*) Luxurious and luxuriant.

(*c.*) Awful and disagreeable.

(*d.*) Pretty and handsome.

(*e.*) Famous and notorious.

5 2. Punctuate the following and introduce capitals where necessary:—

when you've shouted rule britannia
when you've sung god save the queen
when you've finished killing Kruger with your mouth
will you kindly drop a penny in my little tambourine
for a gentleman in khaki ordered south

10 3. If the following sentences are incorrect either in wording or arrangement, rewrite them in correct form:—

Value.

(*a.*) You cannot do this without I help you.

(*b.*) We know the culprit to be he.

(*c.*) A horse stood at the door having a beautiful mane and tail.

(*d.*) Every pupil should bring their own book.

(*e.*) He does not dress like I do.

75 4. Write a composition of from two to three hundred words on *one* of the following topics:—

(*a.*) The death of Caesar—an account by an eye witness. (*Julius Caesar.*)

(*b.*) The quarrel between Oberon and Titania. (*A Midsummer Night's Dream.*)

(*c.*) Mediæval superstitions (based on *Quentin Durward*).

(*d.*) The future of aviation in Canada.

ENGLISH LITERATURE. (Time, 2 hours.)

[*Candidates will write on Section A, Part I.* or *Part II.; and on Section B; and on any* one *section from Sections C, D, and E.*]

SECTION A.

Part I. A Selection of English Poetry, Book I., Part I.

15 1. Explain *any three* of the following quotations, giving the name and author of the poem from which each is taken:—

(*a.*) . . . . our grandsire great
Claiming the regal seat
By many a warlike feat
Lopped the French lilies.

(*b.*) Did the steady phalanx falter? To the rescue at the need,
The clown was ploughing Persia, clearing Greek earth of weed.

(*c.*) So thou must eat of the white Queen's meat and all her foes are thine,
And thou must harry thy father's hold for the peace of the Border-line.

(*d.*) They've no locks
To click against the teeth
Of weasel and fox.

(*e.*) When the wind goes through the poplars and blows them silver-white
The wonder of the universe is flashed before my sight.

(*f.*) Even the busy woodpecker
Made stiller by her sound
The inviolable quietness.

15 2. Explain the meaning of *any three* of the following titles as revealed in the poems to which they are attached:—

(*a.*) The Palace of Pan.

(*b.*) Le Roi est Mort.

(*c.*) Choristers.

(*d.*) Circe.

10 3. By what poetic touches does Shelley heighten the force of the lesson contained in *Ozymandias?*

Part II. A Selection of English Poetry, Book I., Part II.

15 1. Explain *any three* of the following quotations, giving the name and author of the poem from which each is taken:—

Value.

(*a.*) Full on this casement shone the wintry moon,
And threw warm gules on Madeline's fair breast.

(*b.*) Vain transitory splendours! Could not all
Reprieve the tottering mansion from its fall!
Obscure it sinks, nor shall it more impart
An hour's importance to the poor man's heart.

(*c.*) Keen as are the arrows
Of that silver sphere
Whose intense lamp narrows
In the white dawn clear.

(*d.*) . . . riches that serve for nothing
But to fetter a friend for a slave.

(*e.*) Pines shall thy pillars be,
Fairer than those Sidonian cedars brought
By Hiram out of Tyre.

(*f.*) Under a rainbow's jeweled arch,
No foe can find a lodgement there.

15 2. Explain the significance of *any three* of the following titles as revealed in the poems to which they are attached:—

(*a.*) The Haunted Palace.

(*b.*) The Day is Coming.

(*c.*) The New Jerusalem.

(*d.*) A Threnody.

10 3. What interesting association of ideas is found in the poem *The Ice Cart?*

SECTION B. ENGLISH PROSE SELECTIONS, PART II.

15 1. Write briefly on *any one* of the following topics:—

(*a.*) Conference maketh a ready man. (*Of Studies.*)

(*b.*) The old man died in 1689 and was buried in the year 1709. (*The Dead to Reason.*)

(*c.*) The visit to Miss Feeble. (*On the Art of Growing Old.*)

(*d.*) Addison's views on women in politics. (*Party Patches.*)

(*e.*) The woman who apes the man. (*Woman on Horseback.*)

15 2. Write briefly on *any one* of the following:—

(*a.*) The grammar of boys' natures. (*The Good Schoolmaster.*)

(*b.*) The advantage of the cabinet system of government as it exists in Britain. (*The American and British Constitutions—A Contrast.*)

(*c.*) Johnson's opinion of patronage. (*Letter to the Earl of Chesterfield.*)

Or

15 Write a paragraph on *one* of the following:—

(*a.*) The relation between Mrs. Veal and Mrs. Bargrave prior to the death of the former. (*The Apparition of Mrs. Veal.*)

(*b.*) The Second Stranger. (*The Three Strangers.*)

SECTION C. JULIUS CAESAR.

10 1. Explain the following quotations and name the speaker in each case:—

(*a.*) Why, man, he doth bestride this narrow world like a Colossus.

(*b.*) Is Brutus sick? and is it physical
To walk unbraced and suck up the humours
Of the dank morning?

Value.

(*c.*) Here wast thou bayed, brave hart,
Here didst thou fall, and here thy hunters stand.

(*d.*) . . . . you yourself
Are much condemned to have an itching palm.

10 2. By what arguments is Caesar persuaded to change his decision not to go to the Senate House?

10 3. Describe in a paragraph *one* of the following:—

(*a.*) The mob scene in the first act.

(*b.*) The portents which preceded Caesar's death.

(*c.*) The death of Brutus.

SECTION D. A MIDSUMMER NIGHT'S DREAM.

10 1. Describe the part taken by the fairy, Puck, in the play.

10 2. Write a paragraph on the character of Bottom the weaver.

10 3. "Ostensibly the scene of the play is in ancient Athens; in reality it is in the England of Shakespeare's day."
Illustrate the truth of this statement by reference to the play.

SECTION E. QUENTIN DURWARD.

10 1. Describe the meeting of Quentin Durward with Maître Pierre.

20 2. Write a paragraph on each of the following topics:—

(*a.*) The appearance and character of William de la Marck.

(*b.*) Hayraddin Maugrabin's account of himself.

FRENCH. (Time, 2 hours.)

5 1. Answer the following questions in French in complete sentences:—

(1.) A quelle heure vous êtes-vous levé ce matin?

(2.) A quelle heure vous couchez-vous généralement?

(3.) Qu'est-ce qu'une librairie?

(4.) Qu'est-ce qu'on fait dans une cuisine?

(5.) Quel oiseau chante le mieux?

12 2. (*a.*) Complete in French:—

(1.) Une hirondelle est un.....

(2.) Le grenier est au-dessous du.....

(3.) La couturière fait des.....

(4.) On achète du sel et du poivre chez.....

(5.) Le.....bâtit des maisons en bois.

(6.) Le.....prêche (preaches) dans une église catholique.

(7.) Le premier janvier s'appelle.....

(8.) La modiste fait des.....

(9.) Mon ami patine (*mal* or *mauvais*).....

(10.) Nos patins sont (*mieux* or *meilleurs*).....que les autres.

(*b.*) Give another word in French of the same family as the following [example: matin: matinée]:—

(1.) écrire .....

(2.) le jour .....

Value.

(3.) la chasse .....

(4.) l'oreille .....

15 3. (*a.*) Rewrite the following sentences, using the verb in the tense required:—

(1.) Henri *vient* chez nous (future).

(2.) Les soeurs *vont* en ville (past indefinite).

(3.) Jean *va* à la maison (future).

(4.) Nous *nous asseyons* ici (past indefinite).

(5.) Vous *êtes* de bonne heure (imperative).

(6.) Il *pleut* à verse (imperfect).

(7.) Nous *répondons* à la lettre (past indefinite).

(8.) Elle *remplit* son verre (imperfect).

(9.) Nous *avons* du thé (imperative).

(10.) Il *neige* très fort (imperfect).

(*b.*) Use the proper form of the past participle to complete these sentences:—

(1.) Quelles boîtes avez-vous (ouvrir) .....?

(2.) Les enfants se sont (baigner) .....

(3.) Je leur ai (envoyer) .....les fraises.

(4.) Les leçons, que nous avons (apprendre) ..... sont faciles.

(5.) Il a (pleuvoir) .....à verse.

20 4. (*a.*) Use pronouns instead of the nouns in italics:—

(1.) Il est sorti *de la maison.*

(2.) Pouvez-vous voir *le professeur?*

(3.) Donnez-moi *le journal.*

(4.) Ne me montrez pas *le chapeau.*

(5.) Voilà deux *oeufs.*

(6.) N'avez-vous pas pris *les couteaux?*

(7.) Nous avons apporté *le livre aux enfants.*

(8.) Nous avons laissé *des cartes dans le salon.*

(9.) Vous êtes à côté de *Jean.*

(10.) Le professeur est plus grand que *les garçons.*

(*b.*) Use relative pronouns to complete the following:—

(1.) La cuisinière, ...vous avez vue, prépare le dîner.

(2.) Voici les légumes.....elle a parlé.

(3.) La bonne, à.....elle répond, est petite.

(4.) Voyez-vous le four (oven) dans.....elle met la viande?

(*c.*) Use interrogative pronouns in the following:—

(1.) (What).....est dans le four?

(2.) Avec (what).....prépare-t-elle son dessert?

(*d.*) Use demonstrative pronouns in the following:—

(1.) Ces gâteaux-ci sont bons mais.....sont tout noirs.

(2.) Regardez ces assiettes; .....est très jolie.

(3.) Le tablier de la bonne est blanc, mais.....de la cuisinière est rose.

(4.) Cette fourchette et.....qui est sur la table sont propres.

Value.

20 5. Translate into French:—

(1.) These shoes are very cheap.

(2.) Are you going to Seattle by train or boat?

(3.) We have been swimming for fifteen minutes.

(4.) My bed-room is fifteen feet long by twelve feet wide.

(5.) You are boiling some eggs.

(6.) The butcher uses a long knife to cut the meat.

(7.) In the meantime we have Latin four times a week.

(8.) No one has come and there is nothing (à) to do.

(9.) The pupils came in running.

(10.) This aeroplane goes three hundred and sixty miles an hour.

8 6. Read very carefully the passage below and answer the questions at the end *in English*:—

Dans une rue très étroite où il était impossible à deux voitures de passer à la fois, un Quaker assis dans sa voiture a rencontré un individu obstiné dans une charrette (cart). Le Quaker lui a demandé doucement de faire reculer son cheval jusqu'au bout de la rue. Mais l'homme a déclaré qu'il ne le ferait pas. Au bout d'une heure de discussion l'homme dans la charrette a pris un journal et a commencé à le lire attentivement. "Mon ami," dit le Quaker, "quand tu auras fini ton journal veux-tu me le prêter (lend)?" L'autre s'est vu vaincu et, sans rien dire, il a fait reculer son cheval.

(1.) Describe in a sentence the street mentioned above.

(2.) What two persons enter into the story?

(3.) What did the Quaker ask and how?

(4.) What was the answer?

(5.) How long did the two argue?

(6.) What means did one of them take to show his determination?

(7.) Translate the words of the Quaker beginning: "Mon ami . . ."

(8.) What was the result of his speech?

20 7. Write a composition in French (about seventy-five words) describing your school.

Suggestions.

Paragraph I.: Large or small; made of brick (brique f.) or wood; number of stories; number of rooms; number of teachers and students.

Paragraph II.: Subjects you study; those you prefer.

Paragraph III.: At noon; lunch; a game.

Paragraph IV.: Conclusion: My school is a good school; I am learning much that is useful and I work hard (fort), for I know that there's no royal road to learning (on n'a rien sans peine).

GEOMETRY. (Time, 2½ hours.)

[*Candidates will take the first* eight *questions and* one *part of the ninth.*]

[N.B.—*Draw neat diagrams; use printed capitals. Authorities may be cited by number or enunciation.*]

4 1. Express in degrees the angle between *East* and *North-west.*
When are triangles (or other geometrical figures) said to be *similar, congruent, equivalent?*

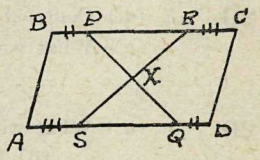
12 2. Construct a $\triangle$ ABC having BC=2 in., $\angle$ A=60°, $\angle$ B=45°. Show all construction lines, and explain clearly your various steps. A proof is not required.

Value.

12 3. ABCD and EFGH are two quadrilaterals having AB=EF, BC=FG, CD=GH, DA=HE, and ∠ ADC=∠ EHG. Prove that these two quadrilaterals are equal.

12 4. Show how to construct a right-angled triangle when given the length of the hypotenuse and that of one side.

12 5. In the accompanying diagram ABCD is a parallelogram having BP=DQ, AS=CR. Prove △ PRX=△ QSX.



12 6. Prove that if the square on one side of a triangle is equal to the sum of the squares on the other two sides, then the angle contained by these two sides is a right angle.

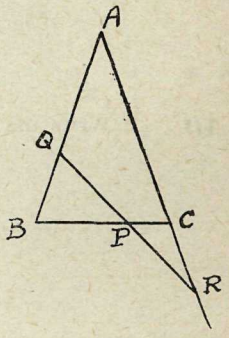
12 7. Of all straight lines that can be drawn to a given line from a point outside it the perpendicular is the shortest. Prove that this statement is true.

12 8. What is the locus of a point which moves within a triangle ABC but which is always equidistant from the two sides AB and AC? Prove the correctness of your statement.

12 9. P is a point lying within the triangle AOB. Draw a straight line through P terminated by OA and OB and bisected at P.

Or

In the accompanying figure AB and AC are the equal sides of an isosceles triangle; QR intersects the base BC in P so that QP=PR. Prove QB=RC.



Or

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 increased by twice the rectangle contained by one of those sides and the projection on it of the other.

HISTORY. (Time, 2 hours.)

[*Answer any* five *questions, at least* two *from each part.*]

PART A.

20 1. (*a.*) Narrate concisely the struggle between the Patricians and Plebeians on the following occasions: (1) the "General Strike"; (2) the Licinian Laws.

(*b.*) Give some account of Roman Society at its best.

20 2. (*a.*) Show how Julius Caesar was "the champion of the oppressed provincial world."

(*b.*) Write briefly on (1) Marcus Aurelius, (2) Diocletian.

(*c.*) Describe briefly the condition of the Middle Class, and of the Peasantry in the later Roman Empire.

Value.

20 3. (*a.*) Why did the Christian Church succeed in the days of the later Roman Empire?
(*b.*) Name the important movements effected by Charlemagne.

20 4. (*a.*) Briefly describe the relation between the king and the barons in Feudal times.
(*b.*) Tell briefly how the peasants lived at this period.

20 5. (*a.*) Contrast the Renaissance period with the "Middle Ages."
(*b.*) What were the characteristics of the Renaissance as it appeared in Italy?

PART B.

20 1. (*a.*) What were the causes of discontent in (1) Upper Canada, (2) Lower Canada, (3) the Maritime Provinces, which led to the movement for reform?
(*b.*) Write a brief note on the work of Lord Elgin.

20 2. Indicate briefly the part played in the development of Canada by the following: (1) Captain Vancouver; (2) The Northwest Company; (3) Lord Selkirk; (4) Sir James Douglas.

20 3. Give some idea of the general progress in Canada between 1840 and 1867, using *four* of the following topics: population, agriculture, fisheries, industries, transportation, education, and standards of living.

20 4. Indicate Canada's place among the nations: (1) in the Empire—her political status in relation to England and to the other dominions; (2) in the League of Nations.

20 5. (*a.*) Write a note on the San Juan dispute between the United States and Canada.
(*b.*) Write short notes on: (1) one Canadian poet; (2) one Canadian painter.

LATIN. (Time, 2 hours.)

10 1. Write the second singular present indicative of *progredior*.....
first singular future indicative active of *capio*.....
third person plural present subjunctive of *nolo*.....
third person singular present indicative of *malo*.....
second person singular imperfect subjunctive active of *fero*.....
third singular perfect indicative active of *pono*.....
first person plural present subjunctive of *fio*.....
second person plural imperfect subjunctive of *venio*.....
third person plural pluperfect subjunctive active of *mitto*.....
first person plural present subjunctive of *eo*.....

5 2. Write the genitive singular of *hic dies*.....
dative singular of *alius exercitus*.....
ablative singular of *ille portus*.....
ablative plural of *illa filia*.....
accusative plural of *flumen ingens*.....

10 3. Put into Latin:—
(*a.*) He returned to Athens.
(*b.*) He comes from Rome.
(*c.*) I spare the slave.
(*d.*) He reigns with great glory.
(*e.*) He will reign with wisdom.
(*f.*) Of his own accord.

Value.

(*g.*) They took to flight.

(*h.*) The middle of the island.

(*i.*) The foot of the mountain.

(*j.*) All of us.

4. Put into Latin:—

1 (*a.*) If we defend our liberty the state will be safe.

1 (*b.*) The camp will have to be fortified.

1 (*c.*) Caesar knows where the soldiers have been.

1 (*d.*) They told Caesar how large Britain was.

1 (*e.*) While this was happening, Suetonius returned.

1 (*f.*) They had fled lest they should be seen.

1 (*g.*) He orders the soldiers to advance.

1 (*h.*) I am afraid that he may come.

1½ (*i.*) He was killed by the soldier whom he had obeyed.

1½ (*j.*) Our men were so brave that the enemy did not fight.

1½ (*k.*) After disbanding his soldiers he returned to Rome.

1½ (*l.*) How many miles from the river Thames did they pitch camp?

2 (*m.*) The next day at dawn the Romans were defeated by the enemy by a stratagem.

2 (*n.*) Although they are no match for the Romans, yet they are unwilling to make peace.

2 (*o.*) The Britons attacked the town before stronger forces could arrive.

10 5. From the word:—

(*a.*) *vir* is formed the Latin derivative .....
meaning .....

(*b.*) *civis* is formed the Latin derivative .....
meaning .....

(*c.*) *tristis* is formed the Latin derivative .....
meaning .....

(*d.*) *legio* is formed the Latin derivative .....
meaning .....

(*e.*) *honor* is formed the Latin derivative .....
meaning .....

(*f.*) *scelus* is formed the Latin derivative .....
meaning .....

(*g.*) *urbs* is formed the Latin derivative .....
meaning .....

(*h.*) *magnus* is formed the Latin derivative .....
meaning .....

(*i.*) *utor* is formed the Latin derivative .....
meaning .....

(*j.*) *aro* is formed the Latin derivative .....
meaning .....

3 6. Put in brackets to the right the number of the word or phrase which best or most correctly completes the sense of the following sentences:—

(*a.*) The chief minister of Augustus was
(1) Virgil (2) Caligula (3) Maecenas (4) Cicero ( )

(*b.*) "Caesar" was made the official title of the Roman emperors by
(1) Vespasian (2) Tiberius (3) Augustus (4) Domitian ( )

(*c.*) In the first five years of his reign Nero received wise guidance from
(1) Poppaea (2) Petronius (3) Seneca (4) Tigellinus ( )

Value.

(*d.*) Hannibal defeated Varro at the battle of
(1) Zama (2) Cannae (3) Carrhae (4) Trebia ( )

(*e.*) Caesar overcame Pompey in battle at
(1) Saguntum (2) Pharsalia (3) Rubicon (4) Actium ( )

(*f.*) The Ides of March was the
(1) first of the month (2) fifth (3) thirteenth (4) fifteenth ( )

[NOTE.—*Do not translate the following extract, but read it through carefully and then answer in English the questions which follow.*]

7. Gnaeus Julius Agricola militavit primum in Britannia cum Suetonio Paulino. Juvenis erat magnae *virtutis*, magni animi, cupidus imperii, peritissimus armorum. Revocatus a Britannia consul factus est et statim post consulatum ut provinciam administraret a Vespasiano remissus est. Adventu ejus Ordovices arbitrati eum, inita hieme, bellum non illaturum esse, armis captis, alam equitum Romanorum trucidaverunt. Ille tamen itinere septuaginta milium passuum *tribus diebus* facto exercitum ad summum montem ubi hostes constiterant duxit eosque magna caede vicit. Deinde tota fere gente deleta *Monam* contendit ut insulam subjiceret. Quod opus inceperat Suetonius sed conficere non potuerat, magno Icenorum motu revocatus.

His rebus gestis, cum *crederet* magis valere clementiam quam arma, operam dedit ut Britanni imperium Romanum ferre vellent. Nam hortabatur ut templa, fora, balneas, domos aedificarent. *Principibus* persuasit ut *litteris* Romanis studerent et lingua Latina uterentur. Denique Britanni spe melioris fortunae sublata quiescebant. Paucis annis ad Clotam et Bodotriam progressus est quas firmis praesidiis munivit. Volebat autem in Hiberniam transire sed, cum Domitianus satis *copiarum* et navium mittere nollet, hoc consilium abjecit. Eodem fere tempore Caledonii, qui in extremis partibus insulae habitabant, territi *victoriis* Romanorum, quam maximas copias coegerunt et contra Agricolam contenderunt. Ille, numero militum inferior, ne circumveniretur exercitum in tres partes divisit. Nocte hostes castra unius partis oppugnaverunt sed prima luce reliquae Romanorum copiae eos a tergo tam acriter adorti sunt ut non diu morarentur sed se in fugam darent. Post id factum habuit Agricola quietissimam Britanniam.

4 (1.) (*a.*) *virtutis*—account for case .....
(*b.*) *tribus diebus*—account for case .....
(*c.*) *Monam*—account for case .....
(*d.*) *crederet*—account for mood .....
(*e.*) *principibus*—account for case .....
(*f.*) *litteris*—account for case .....
(*g.*) *copiarum*—account for case .....
(*h.*) *victoriis*—account for case .....

2 (2.) Describe the character of the young Agricola.

2 (3.) What error in judgment was made by the Ordovices?

3 (4.) How did they pay for this error in judgment?

1 (5.) Suetonius had not been able to complete the subjugation of the island of Mona. Why not?

4 (6.) What measures did Agricola take to Romanize Britain?

1 (7.) Why did he not extend his military operations to Ireland?

4 (8.) What tactics did he employ to deceive the hostile Caledonians? What success did these tactics have?

8. Translate into English:—

3 (*a.*) Post Anci mortem populus Romanus Tarquinium Priscum regnare jussit. Ille bellum cum Latinis gessit Sabinosque vicit.

Value.

4 (*b.*) Post regem expulsum duo consules a populo Romano creati sunt. Tum primum liber erat populus Romanus: tum primum imperia legum erant potentiora quam hominum.

5 (*c.*) Porsena primo impetu repulsus in plano ripisque Tiberis quam celerrime castra posuit. Navibus undique coactis suos trans flumen praedae causa mittere poterat.

6 (*d.*) Commisso proelio Romani primum tela procul conjecerunt, deinde impetu facto hostes passim in fugam dederunt quamquam Boudicea summis viribus nitebatur ne sui pellerentur.

3 9. Quote three lines of Latin poetry which you have memorized, or a Latin selection of over twenty words taken from one of the Biblical selections found in "Latin for Young Canadians."

PHYSICS. (Time, 2 hours.)

[*Questions are of equal value. Answer* five *only.*]

1. (*a.*) Define the following terms: Mass, density, specific gravity.
   (*b.*) Find in kilograms the weight of a solid cylinder 4 metres long, 3.5 metres in diameter, and having a specific gravity of 3. (1 cubic centimetre of water weighs 1 gram.)
   (*c.*) Why is woollen clothing warmer than cotton clothing? Explain fully.

2. (*a.*) Make a diagram showing the essential parts of a mercury barometer. With reference to your diagram, explain how the barometer measures atmospheric pressure.
   (*b.*) An inclined plane is 14 feet long and 5 feet high. Neglecting friction, what force acting parallel to the plane will just support a weight of 350 pounds on the incline?
   (*c.*) Will a solid sphere hold a larger charge of electricity than a hollow sphere of the same diameter? How would you demonstrate the truth of your answer?

3. (*a.*) State Pascal's Law.
   (*b.*) A solid weighs 330 grams in air, 315 grams in water, and 303 grams in sulphuric acid. Find the density of the solid and also the density of the acid. How much would the solid weigh if immersed in a liquid of specific gravity 1.2?

4. (*a.*) Show how to establish experimentally the first law of reflection.
   (*b.*) Find the resulting temperature when 240 grams of a metal of specific heat 0.113, at 90° C., are placed in 160 grams of oil of specific heat 0.6, at 20° C.

5. (*a.*) Define the following terms: Temperature, calorie, specific heat, convection currents.
   (*b.*) A knitting-needle is carefully balanced so that it hangs horizontally when suspended from a single thread. The needle is then magnetized without disturbing the thread. Describe and explain how the needle behaves when again suspended.
   (*c.*) How would the particular location in which the above experiment was carried out affect the result? Illustrate with three widely separated localities, such as British Columbia, Nova Scotia, and South America.

6. (*a.*) Show how a gold-leaf electroscope may be charged negatively by using a positively charged body. Illustrate your answer with diagrams.
   (*b.*) Make a neat diagram of a set of pulleys having a mechanical advantage of four.
   (*c.*) Make a drawing of a voltaic cell on closed circuit. Label all parts and show by means of arrows the direction of the current.

Grade XI., Junior Matriculation and Normal Entrance.

AGRICULTURE. (Time, 2 hours.)

[*Candidates will answer question* 1 *and any* six *of the remainder.*]

Value.

10 1. Enumerate the main types of soil and state briefly their chief characteristics.

15 2. Illustrate by short statements and examples how we can favour the growth and activity of useful bacteria in the soil.

15 3. For a six-year rotation of: (1) grain, (2) clovers and grasses, (3) clovers and grasses, (4) hoed crops, (5) grain, and (6) soiling-crops, you can afford to apply 28 tons of stable manure per acre. To what crops and in what quantities would you distribute this amount?

15 4. How would you prepare and treat the soil in a garden under conditions where cost is of only minor importance?

15 5. Draw a sketch for the planting of the grounds around the home or the school in your own district and suggest trees and shrubs suitable for this purpose.

15 6. Discuss the comparative value of alfalfa and red clover as a field crop in your own locality.

15 7. Describe the type of soil you would choose for strawberries, and discuss varieties, planting, care, and harvesting of this small fruit.

15 8. State and describe your choice of dairy cattle and the methods you would follow to secure high and economic milk production.

15 9. Compare dry-farming and farming in humid districts and point out the main differences in management.

ALGEBRA. (Time, 2½ hours.)

10 1. (*a.*) Factor:—

(1.) $ab - by - ay + y^2$.

(2.) $x^3 + 8y^3 - 2xy(x + 2y)$.

(3.) $x^4 + 9x^2y^2 + 81y^4$.

(*b.*) Find the H.C.F. of $b^3x - ab^2x - 6a^2bx$ and $ab^2x^2 - 4a^2bx^2 + 3a^3x^2$.

10 2. Simplify:—

(*a.*) $\dfrac{1}{(x-y)(y-z)} + \dfrac{1}{(z-y)(z-x)} - \dfrac{1}{(y-x)(x-z)}$.

(*b.*) $\dfrac{\dfrac{x^2+y^2}{y} - x}{\dfrac{1}{y} - \dfrac{1}{x}} \times \dfrac{x^2-y^2}{x^3+y^3}$.

10 3. (*a.*) In the formula $P = \dfrac{WL + vl + wg}{Al}$ solve for l.

(*b.*) Given $W = 4.25$, $L = 3.82$, $v = -2.034$, $w = .034$, $g = 32$, $P = 5.73$, $A = 2.46$, find l to two places of decimals.

(*c.*) Does l increase when v increases? Give the reason for your answer.

16 4. (*a.*) A man has two sums of money at interest, the first at 4% and the second at 4½%. The yield from the first is half as much as the yield from the second. If the amounts were interchanged the income would be $1,045. Find the amount invested at each rate of interest.

Value.

(*b.*) Two motorists start at the same time from points 130 miles apart and travel towards each other. The speed of one motorist is 30 miles per hour, while the speed of the other in miles per hour is 33 more than the number of hours before they meet. How long after starting will it be until they meet and how far will each have travelled?

15 5. (*a.*) Solve:—

$$\frac{8}{x}+\frac{4}{y}=5.$$

$$\frac{2}{y}+\frac{3}{z}=1.$$

$$\frac{5}{x}+\frac{9}{z}=4.$$

(*b.*) Solve: $x-3y=1$, $x^2-2xy+9y^2=17$.

(*c.*) Solve: $3x^2+2x-7=0$, correct to two places of decimals.

12 6. (*a.*) Find in simplified form the mean proportional between

$$\sqrt{3}-\sqrt{2} \text{ and } \frac{9}{\sqrt{3}+\sqrt{2}}.$$

(*b.*) Two positive numbers are in the ratio 2 : 1. If each is increased by 3 the sum of their squares is 306. Find the numbers.

15 7. (*a.*) Find the square root of $11-\sqrt{120}$.

(*b.*) Divide $x^{-1}+y^{-1}$ by $x^{-\frac{1}{3}}+y^{-\frac{1}{3}}$.

(*c.*) Simplify:—

$$\left[9^{n+\frac{1}{4}}\sqrt{3\times 3^n}\div 3\sqrt{3^{-n}}\right]^{\frac{1}{n}}.$$

12 8. (*a.*) Plot on the same set of co-ordinate axes the graphs of $y=x^2+2x$ and $y=x^2+2x+2$.

(*b.*) How does the addition of a positive constant to a function change its graph?

(*c.*) What is the minimum value of y in $y=x^2+2x+2$?

(*d.*) Solve (i) graphically, (ii) algebraically, $y=x^2+2x+2$ and $2x+y=2$.

BOTANY. (Time, 2 hours.)

[*Questions are of equal value.*]

1. Give at least *one* example of plants which reproduce by means of (1) runners, (2) tubers, and (3) bulbs. Describe the structure of the reproductive portion of the plant in each case and show how food is provided for the early growth of the young plant.

2. Describe the process of photosynthesis. What part in the process is taken by chlorophyll? Describe an experiment to determine the importance of light in the process.

3. Describe the flower of a plant belonging to *one* of the families: Leguminosæ, Cruciferæ. Give the floral formula and construct a floral diagram. Describe the seed and fruit and show how each part of the latter originates.

4. Name five cone-bearing forest trees which grow in British Columbia. To what genus does each belong? Compare the leaves and cones. Under what conditions does each tree grow best, and in what part of the Province is it found?

5. Compare an alga and a fungus under the following headings: (*a*) habitat or general conditions of life; (*b*) structure; (*c*) method of procuring food; (*d*) method of reproduction; (*e*) economic importance. Give specific examples.

CHEMISTRY. (Time, 2½ hours.)

[*Candidates will answer* all *of Section A and any* three *questions from Section B. Atomic weights are given at the end of the paper.*]

SECTION A.

Value.

14 1. (*a.*) Closed, circulating, hot-water systems for heating houses sometimes are troubled with a combustible gas collecting in the iron radiators. What is this gas, and how do you account for its formation?

(*b.*) Why do we consider there is such a compound as carbonic acid when it has never been obtained? Is carbon dioxide a poisonous gas? Explain.

14 2. (*a.*) Why cannot pure hydrogen iodide be prepared by the action of sulphuric acid on an iodide?

(*b.*) Why does concentrated nitric acid not release hydrogen when acted on by zinc or iron?

12 3. What great Canadian industries require large quantities of caustic soda (NaOH)? How is this soda produced?

12 4. State the Law of Concentration or Mass Action. Give applications of the usefulness of this law in chemistry. What effect do you think increase of pressure would have on the equilibrium: $N_2+3H_2 \rightleftharpoons 2NH_3$?

12 5. (*a.*) Define (1) atomic weight, (2) absolute zero, (3) double salt.

(*b.*) What is (1) alundum, (2) "hypo," (3) neon?

SECTION B.

12 6. Distinguish between hydrocarbons and carbohydrates. What carbohydrates do you know and where do they occur? How is glucose usually made? Is the sugar extracted from beets and from sugar-cane the same?

12 7. What is there in milk that gives it the reputation of being a satisfactory food? What is an enzyme? Where are enzymes usually found? Give any reaction, you know, that is affected by the presence of an enzyme.

12 8. Give a brief description of two methods for making steel from wrought iron or pure pig-iron. Name three special steels and give their chief uses.

12 9. Write a short account of: (*a*) the Haber Process for making ammonia; (*b*) the commercial production of aluminium; (*c*) the production of potassium nitrate.

12 10. 50 c.c. of a 5-per-cent. solution of ammonium hydroxide, specific gravity 0.98, was mixed with 50 c.c. of a 5-per-cent. solution of hydrochloric acid, specific gravity 1.025. (Both percentages by weight.) Which of the two reagents was completely neutralized? What weight of the residual reagent remained? What weight of water was formed?

12 11. A gas-stove used in heating a room burns 10 cubic feet of gas per hour. Supposing that the gas is pure methane, what volume of oxygen is withdrawn each hour from the air in the room? What volume of carbon dioxide is given off?

12 12. A given volume of oxygen standing over water at 20° C. and 745 mm. measures 10 litres. What would be its volume under standard conditions? What is its weight? The vapour tension of water at 20° is 17.5 mm. of Hg.

Atomic weights: N=14, Cl=35.5.

ENGLISH COMPOSITION. (Time, 2 hours.)

[*Candidates are reminded that they are expected to spell and punctuate correctly. They are therefore urged to leave some few minutes free for a revision of their papers. They are also reminded that they cannot expect marks for paragraphs and essays that are not well organized and well worked out. They are therefore urged to plan their compositions before they begin to write. The plan of the essay in question 2 should be written in the examination book as part of the answer.*]

Value.

20 1. Explain, with examples, what is meant by the following principles of sentence-structure:—

(*a.*) Balance or parallel structure.

(*b.*) Proper reference of pronouns.

(*c.*) Order of climax.

(*d.*) Unity of thought in a compound sentence.

80 2. Write a composition, which need not be longer than 300 or 400 words, on *one* of the subjects named below. Your plan, written in proper form, must accompany the composition.

(*a.*) The causes that made Silas a miser.

(*b.*) The life and works of Modestine.

(*c.*) Unfitness and fitness for office as combined in Lincoln.

(*d.*) Points of difference between *As You Like It* and *The Merchant of Venice* as plays.

(*e.*) A character-sketch of Lynette.

(*f.*) The character of Elizabeth as outlined in *Kenilworth*.

(*g.*) The value of athletics to a high-school student.

ENGLISH LITERATURE. (Time, 2½ hours.)

[*Candidates will write on Parts A and D, and on* either *Part B* or *Part C.*]

PART A.

16 1. Of the poets whose work you have studied in *A Selection of English Poetry*, which do you prefer? State a definite reason for your preference. Write a brief essay (a page or so) outlining and illustrating, by quotation or exact references, three qualities of this poet's style or thought.

12 2. Make clear, by definition or any other way you choose, what you understand by "metre." Illustrate two different kinds of metre by quoting and analysing two brief passages of verse.

12 3. Name poems from *A Selection of English Poetry* that illustrate *any eight* of the following themes:—

(*a.*) Giving up the struggle.

(*b.*) The old generation of poets speaking to the new.

(*c.*) A symbol of the daring of the human mind.

(*d.*) Rank does not make the man.

(*e.*) The great age of the world.

(*f.*) A hope that was doomed to disappointment.

(*g.*) A humble creature's pride.

(*h.*) A change in a poet's view of life.

(*i.*) Desire for death.

Value.

(*j.*) The longing for home.

(*k.*) The elements that make up man's nature.

(*l.*) The missing of a "chance with one of the lords of life."

(*m.*) A "harmonious hymn of being."

(*n.*) The longing for a controlled life.

(*o.*) Things do not change much.

(*p.*) The magical effect of love.

(*q.*) The cry of an untamed soul.

(*r.*) A man who was a great failure.

(*s.*) The contrast of new and old.

(*t.*) A man who would not be saved alone.

PART B.

[*Answer any* three *of the four questions.*]

14 1. "And oftentimes, to win us to our harm,
The instruments of darkness tell us truths,
Win us with honest trifles, to betray us
In deepest consequence."

Who spoke these words? Under what circumstances? Discuss the truth of the speech as applied to the play *Macbeth*.

13 2. What use is served in the play by the elements named below? Choose *any four*. None of the answers should exceed two or three sentences in length.

(*a.*) Fleance.

(*b.*) Malcolm.

(*c.*) Birnam Wood.

(*d.*) The physician.

(*e.*) The porter.

(*f.*) The incident of Lady Macduff and her son.

13 3. Quote or fully paraphrase a very brief passage illustrating *any four* of the things named below. In no case should the passage or the paraphrase exceed three or four lines.

(*a.*) A sense of false security in presence of danger.

(*b.*) Lady Macbeth's strength of mind.

(*c.*) The physical horror that finally overwhelmed her.

(*d.*) Macbeth's despair.

(*e.*) The physical appearance of the witches.

14 4. Compare Macbeth, as to character and fate, with the hero of any other Shakespearian tragedy that you have read.

PART C.

[*Answer any* three *of the four questions.*]

14 1. "He hates our sacred nation, and he rails,
Even there where merchants most do congregate,
On me, my bargains, and my well-won thrift,
Which he calls interest. Cursed be my tribe,
If I forgive him!"

To whom are these words addressed? Under what circumstances are they uttered? Point out how important they are, coming near the beginning of the play, for the plot and for our insight into the speaker's character.

13 2. What use is served in the play by the elements named below? Choose *any four*. None of the answers should exceed two or three sentences in length.

(*a.*) Jessica.
(*b.*) Nerissa.
(*c.*) The moonlight scene.
(*d.*) The incident of the rings.
(*e.*) Tubal.
(*f.*) Doctor Bellario.

13 3. Quote or fully paraphrase a very brief passage illustrating *any four* of the things named below. In no case should the passage or the paraphrase exceed three or four lines.

(*a.*) The better side of Shylock's nature.
(*b.*) Gratiano's impudence.
(*c.*) Portia's one moment of confusion.
(*d.*) Portia's complete generosity of nature.
(*e.*) Antonio's bravery or unselfishness.

14 4. Compare Portia's character with that of the heroine of any other Shakespearian comedy that you have read.

PART D.

A poem for "sight-reading."

Marshwood Vale.

Watched by the hills it slumbers,
Hears, but not heeds, the sea,
Cold clay and woodland
Since eternity.
In Marshwood, in Marshwood,
Time's self grows drowsy there,
Folds wings and lingers
With hours on hours to spare.

No signposts mark in Marshwood
The roads that wander blind,
Where sleep forgotten
Lost farms none comes to find.
In Marshwood, in Marshwood,
Untouched the wild white rose
Clambers the hedges
Down lanes where no man goes.

Lost things live on in Marshwood:
Dead hands in Marshwood Vale,
High up the steeple,
Have carved the Holy Grail.
Little the years have changed there
Since Arthur come and gone;
Still Marshwood slumbers
The sleep of Avalon.

8 (*a.*) Describe the "general feeling" or "atmosphere" of this place by a single word or phrase. Justify your word or phrase by listing a dozen expressions in the poem that support it.

2 (*b.*) What is the effect of the repetition of "Marshwood"?

2 (*c.*) What is the effect of the mention of King Arthur?

4 (*d.*) Indicate the metre of "Cold clay and woodland," and "Folds wings and lingers." Point out four other similar lines.

4 (*e.*) Comment on the meaning of "wander blind" and "Lost things live on."

FRENCH GRAMMAR. (Time, 2 hours.)

Value.

15 1. Write in the spaces provided the correct forms of the words in italics:—

Il chanta de sa *beau*.....voix, de *vieux*..... chansons du pays. Il avait une de ces voix qui coulent comme une eau courante en reflétant les *doux*.....rives (fem.) de la vie. L'*ancien*.....ville a des rues *neuf*.....depuis la guerre mais son *nouveau*.....état ne plaît pas aux vieux habitants qui aimaient les pierres *roux*.....de leurs *petit*.....rues. Ils ne sont pas jaloux de la ville *voisin*.....car leur ville à eux est comme un village *tranquille*.....où la vie s'écoule lentement, sans aucune alerte *vif*.....mais aussi sans ennui, dans la lumière *merveilleux*.....de ce soleil méridional. Les rues sont *gai*.....et *animé* .....sous ce climat *salubre*.....

15 2. Change the words in the following passage from the infinitive to the past tense (using the imperfect, the past definite, or the past participle, as required by the context):—

Tous les ans je *passer*.....mes vacances à la campagne où mon oncle *posséder*.....une ferme. Le matin je *se lever*.....de bonne heure et j'*aller* .....aux champs. Les ouvriers agricoles *saisir* .....la paille qui *sortir*..... de la machine et en *faire*.....des meules. La machine *battre*.....le blé et le bruit qu'elle faisait n'*être*.....jamais *interrompre* ..... Un jour par hasard, elle *ralentir* .....et le fermier s'en *apercevoir*..... Aussitôt il *longer*.....le champ, *faire* .....amener un ouvrier et l'on *réparer* .....la machine sans l'arrêter.

30 3. Put into French the following passage (*work carefully; read your finished work*):—

George's sailing boat has been sold and he is leaving the sea-side to live in the country. He has a little farm which has belonged to him for over four years although he has never lived there. The house is right in the country. It has a tower with a ladder against the wall and a vine that climbs up to the little windows with their pretty white curtains. He is lucky to have such a shelter from the heat of the summer and one glance at the green lawns is enough to make us want (*donner envie*) to be there. The garden is, of course, very important as he is too far from the wholesale merchants to buy his vegetables from them. He buys no bread from the baker and his little brothers cannot spend their money at the corner shop. There is no bakery and no corner shop for there is no other house near his.

20 4. Make short but complete sentences in French to illustrate the use of the following words. Write *in English* the meaning of each of your sentences.

(*a.*) cet.
Sentence .....
Meaning .....

(*b.*) ceux.
Sentence .....
Meaning .....

(*c.*) plus de.
Sentence .....
Meaning .....

Value.

(*d.*) plutôt.
Sentence .....
Meaning .....

(*e.*) ce qui.
Sentence .....
Meaning .....

(*f.*) ce que.
Sentence .....
Meaning .....

(*g.*) à mesure que.
Sentence .....
Meaning .....

(*h.*) jusqu'à ce que.
Sentence .....
Meaning .....

(*i.*) il faut (followed by an infinitive).
Sentence .....
Meaning .....

(*j.*) davantage.
Sentence .....
Meaning .....

12 5. Complete the following sentences by putting the verbs in italics in the tense required by the context:—

(*a.*) Pourquoi fermez-vous la fenêtre? Je l'ai *ouvrir*..... pour avoir de l'air.

(*b.*) Je ne *pouvoir*.....pas vous voir aujourd'hui.

(*c.*) Comment, mademoiselle, je vous trouve encore *asseoir*..... au lieu de travailler!

(*d.*) Vous *se lever*.....trop tard tous les matins.

(*e.*) Il *attendre* (preterit).....son déjeuner hier jusqu'à ce que que les autres *revenir*.....

(*f.*) A cette époque le maçon *bâtir*.....une maison en face de la nôtre et elle était loin d'être achevée.

(*g.*) Oui mais j'espère qu'il *essuyer*.....ses mains demain, avant de toucher à mon dîner.

(*h.*) Je *s'habiller*.....plus vite s'il ne me parlait pas tout le temps.

(*i.*) Ils *faire*.....toujours le contraire de ce que je leur dis.

(*j.*) Après *venir*.....à l'école deux fois il n'a plus assisté au cours.

(*k.*) J'*aller* (fut.).....le voir demain.

8 6. Supply the correct prepositions in the following sentences. If none is necessary, put a cross (X) in the space provided.

(*a.*) Il s'est approché.....feu et il s'est brûlé.

(*b.*) Plusieurs.....personnes m'ont dit la même chose.

(*c.*) Il s'est mis.....pleurer tout d'un coup.

(*d.*) Je désirerais.....vous revoir.

(*e.*) Cela ne plaît peut-être pas.....tout le monde.

(*f.*) Bien.....fautes viennent de l'inattention.

(*g.*) Beaucoup.....hommes se trompent malgré eux.

(*h.*) Il vaut mieux.....rester ici.

FRENCH TRANSLATION. (Time, 2 hours.)

Value.

40 1. Composition française (au moins 200 mots).

Description détaillée de la maison de campagne, grande ou petite, où vous allez passer vos vacances d'été. Situation, aspect, nombre de pièces, leur usage; meubles simples ou ornés. Grandeur du jardin, allées, fleurs, lesquelles? Parc voisin ou forêt, sortes d'arbres, rivière. Amusements et occupations pendant votre séjour.

25 2. (*a.*) Donnez en français la définition de: la capitale, le cavalier, le petit déjeuner.

(*b.*) Donnez le nom (avec article) qui correspond à ces définitions:—

(1.) Un homme extrêmement brave.

(2.) Celui qui est enfermé sans pouvoir sortir.

(3.) Une machine volante construite par l'homme.

(4.) Morceau d'étoffe suspendu devant une fenêtre pour intercepter la vue.

(5.) Celui qui n'est pas votre ami et qui vous déteste.

(6.) Accident très sérieux à un navire sur mer.

(*c.*) Formez une phrase complète à l'aide des mots suivants et d'autres; faites les changements nécessaires. Traduisez chaque phrase en anglais.

(1.) les provisions, aller chercher, en plein air, vendre, en train de.

(2.) les applaudissements, la foule, le sauveteur, jusqu'à ce que, sortir.

15 3. (*a.*) Trouvez les équivalents des mots en italique:—

(1.) Ces enfants *sont très bruyants.*

(2.) Comment *vous portez-vous à ce moment?*

(3.) Dans *quinze minutes* au moins, *il nous faut* partir, car le temps est *superbe.*

(*b.*) Contraires des mots en italique:—

(1.) C'est une malle *vide,* elle est très *légère* et bien *inutile* quand on l'a *montée* dans ma chambre.

(2.) Il trouve la leçon *difficile,* et il n'est *jamais* le *dernier* en classe; il *a tort* de *mal* travailler.

20 4. Après avoir lu ce passage, répondez *en anglais* aux questions.

Pendant le "règne de la Terreur" un très petit nombre de personnes venaient jouer aux cartes au Café de la Régence. On n'en avait pas le coeur, car ce n'était guère agréable de voir par les fenêtres, passer dans la rue St. Honoré les charrettes (carts) conduisant les condamnés à l'exécution.

Robespierre venait souvent s'y asseoir, mais telle était la terreur dont l'insignifiant petit homme, si pâle, remplissait tous les coeurs, que très peu de personnes avaient le désir de jouer avec lui.

Un jour un beau jeune homme vint s'asseoir en face de lui, et fit un geste comme pour proposer une partie. Robespierre accepta l'invitation et l'étranger gagna. Ils jouèrent une seconde partie que l'étranger gagna également. Alors Robespierre demanda quel était l'enjeu (stake).

—"La tête d'un jeune homme qu'on doit exécutor demain" fut la réponse. Voici l'ordre de sa mise en liberté, il n'y manque que votre signature; signez vite, car on n'accordera aucun délai."

C'est ainsi que le jeune comte de B. fut sauvé de la guillotine. Le papier signé, l'homme du pouvoir demanda: "Mais qui êtes-vous donc citoyen?"—Dites plutôt "citoyenne" monsieur; je suis la fiancée du comte, merci et adieu.

(1.) Quel nom donne-t-on à l'époque la plus sombre de la Révolution française? savez-vous pourquoi?

(2.) Pourquoi venait-on rarement au café alors?

Value.

(3.) Nommez et décrivez le personnage qui le fréquentait souvent?

(4.) Avec qui jouait-il et lequel des deux gagna?

(5.) Comment le comte de B. fut il sauvé et par qui?

GEOMETRY. (Time, 2½ hours.)

[N.B.—*Draw neat diagrams; use printed capitals. Authorities may be cited by number or enunciation.*]

13 1. (*a.*) In any triangle the square on the side opposite an acute angle equals the sum of the squares on the other two sides diminished by twice the rectangle contained by either of these sides and the projection on it of the other.

2 (*b.*) In the triangle ABC, AB=4, BC=5, AC=8. Compute the length of the projection of BC upon AB.

13 2. The angles made by a tangent to a circle with a chord drawn from the point of contact are respectively equal to the angles in the alternate segments of the circle.

10 3. Show how to draw a square equal in area to a given triangle. (Give explanations of construction but no proofs.)

4. Make accurate constructions in (*a*) and (*b*) of the following, showing all necessary construction lines:—

3 (*a.*) Construct a triangle ABC having sides 1½, 1¾, and 2 inches long. (No explanations are required.)

4 (*b.*) Construct another triangle DEF similar to ABC and twice its area. (No explanations are required.)

13 (*c.*) Prove the theorem used in showing that the area of DEF is twice the area of ABC.

14 5. The base and the vertical angle of a triangle are given. Find the locus of the intersection of lines drawn from the ends of the base perpendicular to the opposite sides of the triangle.

14 6. Within a circle of radius r_1 draw two circles of radii r_2 and r_3 which touch each other externally and both of which touch the circle of radius r_1 internally. ($r_1 > r_2+r_3$.) (Give explanations but no proof.)

14 7. DEF is a triangle inscribed in a circle with centre O. The diameter perpendicular to EF cuts DE at P and FD produced at Q. Prove that OE is a mean proportional between OP and OQ.

GERMAN GRAMMAR. (Time, 2 hours.)

5 1. Complete the following sentences by filling in proper articles and endings where needed, always putting the underlined word in the genitive. Then rewrite in the plural:—

(1.) —Kopf—Menſch iſt rund.

(2.) —Name—Stadt iſt Vancouver.

(3.) —Schweſter—Knabe iſt Marie.

(4.) —Seite—Buch iſt weiß.

(5.) —Bewegung—Herz iſt regelmaßig.

Value.

10 2. Put into German :—

(1.) He went behind the desk and up to the blackboard.
(2.) She is sitting on a chair near the window.
(3.) He works for his father during the day.
(4.) Karl went with his brother out of the house.

20 3. (*a.*) Rewrite in the present and imperfect tenses :—

(1.) Er hat ſein Frühſtück gegeſſen.
(2.) Er iſt früh aufgeſtanden.
(3.) Er hat es hinausgeworfen.
(4.) Sie hat es mitgebracht.
(5.) Er hat um Verziehung gebeten.

(*b.*) Rewrite in the pluperfect :—

(1.) Er bewacht das Haus.
(2.) Es wird dunkel.
(3.) Bleibt ihr zu Hauſe ?
(4.) Er ſchläft ſogleich ein.
(5.) Wir heben die Kreide auf.

(*c.*) Rewrite (*b*) (1) in the future ; (*b*) (2) in the future-perfect, and all the imperative forms of ſich hinſetzen and es vorleſen.

10 4. Put into German :—

(1.) He knows that he cannot speak German well.
(2.) He wants to go home but he has to stay here.
(3.) I thought that you were bringing me your book.
(4.) I knew that he did not know you.
(5.) He could not find his pen, so he had to write with his pencil.

10 5. Fill in the correct endings and insert articles or adjectives where necessary, then rewrite in the plural :—

(1.) —groß—Haus mit—rot—Dach gehört mein—reich—Onkel.
(2.) Mein—klein—Schweſter ſpielt mit—gelb—Katze und—ſchwarz—Hund unſer—gut—Nachbars.
(3.) —alt—Lehrer unſer—deutſch—Klaſſe hat—ſchön—Garten.

15 6. Put into German :—

(1.) I think that pencil belongs to my sister ; please show it to her.
(2.) This is my dog and that is hers ; which one do you prefer ?
(3.) The pen with which I was writing yesterday has no ink in it.
(4.) My friend, whose mother has suddenly become ill, has gone home.
(5.) He described to us all that he had seen on his trip.

15 7. Put into German :—

(1.) There are three hundred and sixty-five days or fifty-two weeks and one day in a year.
(2.) On Mondays, Wednesdays, and Saturdays I go to the country to visit my uncle.
(3.) Please bring us two glasses of water and three cups of coffee.
(4.) With what and to whom are you writing ? This is a good pen, write with it.
(5.) When the days are longest, the nights are shortest.

Value.

15 8. Put into German:—

Vancouver is a rather large city in the western part of Canada with one of the best harbours in the world. It has grown very quickly and now has two main streets in which all kinds of vehicles and many pedestrians hurry along. In the middle of each of these streets cars go up and down. On both sides are fine shops with decorated windows and other high buildings. The city has now over three hundred and fifteen thousand inhabitants, but most of these live in quieter parts of the town. The houses of the rich are large and beautiful and are usually surrounded by splendid gardens.

GERMAN TRANSLATION. (Time, 2 hours.)

60 1. Put into English:—

(1.) Er führte seinen Esel an der Hand, und der Wirt wollte ihm das Tier abnehmen und es anbinden; der junge Geselle aber sprach: „Gebt Euch keine Mühe; meinen Grauschimmel führe ich selber in den Stall und binde ihn auch selber an, denn ich muß wissen, wo er steht." Das schien dem Wirt sonderbar, und er meinte, einer, der seinen Esel selbst anbinden mußte, hätte nicht viel Geld. Als aber der Fremde zwei Goldstücke aus der Tasche nahm und sagte, er wolle etwas Gutes zu essen, machte er große Augen, lief und suchte das Beste, was er finden konnte.

(2.) In einem Dorfe am Ostseestrande wohnte ein junger Fischer, der trotz seiner Armut von großer Lebenslust war und deshalb gern mehr des irdischen Gutes gehabt hätte. Da er jedoch wenig Hoffnung hatte, durch die Fischerei reich zu werden, saß er eines Tages kummervoll am Strande und hörte dem rastlosen Plätschern der Brandungswellen zu. Das klang ihm sehr lieblich, wie ein freundliches Plaudern von Mädchenlippen.

(3.) Indessen meinte der Peter, es sei Zeit, sein Vieh zu füttern, und stieß gähnend die Stalltür auf. Da sieht er den leeren Stand des Braunen. Lange konnte er kein Wort hervorbringen. „Zum Kuckuck!" rief er endlich aus; „der fremde Gaul war mein Hansel, und es ist durch Blendwerk geschehen, daß kein Mensch ihn dafür erkannte." Der Peter wollte sich die Haare ausraufen, allein, was sollte er machen? Der Gaul war fort.

(4.) Dann brach aus den Augen beider ein heißer Tränenstrom, und unter Tränen erzählte Alheid, wie sie, dem Rat der Eule folgend, die Wunschfrau aufgesucht habe und auf ihre Bitten in eine Eselin verwandelt worden sei. Dann erstattete auch der Gänserich, von heftigem Schluchzen oft unterbrochen, Bericht, und die Sonne hat wohl nie zwei unglücklichere Geschöpfe beschienen als unsere beiden Liebenden.

Value.

(5.) Ein Silberſtückchen warf er dreimal ins Meer hinab,
Und dreimal mußt' ich's holen, eh er's zum Lohn mir gab.
Dann reicht' er mir ein Ruder, hieß in ein Boot mich gehn,
Er ſelber blieb zur Seite mir unverdroſſen ſtehn,
Wies mir, wie man die Woge mit ſcharfen Schlage bricht,
Wie man die Wirbel meidet und mit der Brandung ficht.

(6.) Es klirrten die Becher, es jauchzten die Knecht';
So klang es dem ſtörrigen Konige recht.
Des Konigs Wangen leuchten Glut;
Im Wein erwuchs ihm kecker Mut.
Und blindlings reißt der Mut ihn fort;
Und er läſtert die Gottheit mit ſündigem Wort.
Und er brüſtet ſich frech, und läſtert wild;
Die Knechtenſchar ihm Beifall brüllt.

10 2. Translate at sight:—

Einen Tag fuhr ein kleiner Junge in der Straßenbahn. Er ſaß ganz ſtill in einer Ecke und hoffte, daß der Schaffner ihn nicht ſehen würde. Aber der Schaffner ſah ihn doch und rief: „Du, Kleiner, du haſt noch nicht bezahlt. Du biſt viel zu groß um frei zu fahren." Da war nun leider nichts zu machen, er mußte bezahlen. Langſam zog er den Geldbeutel aus der Taſche, nahm ein Zehnpfennigſtück heraus, gab es dem Schaffner und ſagte: „Hier iſt Ihr Geld. Aber ich möchte Ihnen etwas ſagen; wenn ich bezahlen muß, will ich mit Sie angeredet werden."

15 3. Put into German:—

Once there was a good shoe-maker who became very poor. He got up one morning and found a fine pair of shoes on his table, which he had not made. He did not know who had helped him, but he sold them for a good price. Later he learned that two tiny, naked little men came every night at midnight and worked for him. He and his wife were so thankful that they made clothes and shoes for them, and with these the little men were very much pleased.

15 4. Write in German a description of the seasons.

GREEK. (Time, 2 hours.)

10 1. Decline *πατήρ, γέρων.*

10 2. Decline *οὗτος, μέλας.*

16 3. Write the second singular imperfect indicative passive of *τιμάω*; the first plural aorist subjunctive active of *λύω*; the third plural aorist imperative passive of *ἀθροίζω*; the first plural aorist optative passive of *πέμπω*; the third singular present optative active of *τιμάω*; the third plural perfect indicative passive of *λείπω*; the second singular pluperfect indicative passive of *ἄγω*; the first plural present indicative of *ἡττάομαι.*

9 4. Write the imperfect indicative of *εἰμί, ποιέω* (passive); the pluperfect indicative active of *ἀθροίζω.*

Value.

10 5. Write the principal parts of ἐλαύνω, σῴζω, δοκέω, ἥδομαι, ἀκούω, πράττω, φιλέω, ἄρχω, κόπτω, γράφω.

25 6. Translate into English:—

(*a.*) οἱ δε στρατηγοὶ αὐτὸν ἐρωτῶσι τί σφίσιν ἔσται ἐὰν νικήσωσι.

(*b.*) μηκέτι φοβοῦ, ὦ Κλέαρχε, μὴ κυκλωθῇς ἑκατέρωθεν.

(*c.*) ἅμα τῇ ἡμέρᾳ δύο ἀγγέλους πεμψάντων πρὸς τὸ τεῖχος.

(*d.*) εἰ οἱ Ἕλληνες νικῷεν τοὺς βαρβάρους, καλῶς ἂν ἔχοι.

(*e.*) Ξενοφῶντα ἄρχοντα ἐποιησάμεθα ἵνα σωθεῖμεν.

20 7. Translate into Greek:—

(*a.*) I did this in order that the enemy might not hear.

(*b.*) Let us ask Cyrus what he intends.

(*c.*) The generals proceeded through the mountains.

(*d.*) Let the mercenaries be collected in the market place.

HISTORY. (Time, 2 hours.)

[*Answer question* 8 *and* three *others.*]

25 1. Describe conditions in France before the Revolution and the ideas of change that were becoming popular at that time through the writings of Voltaire and Rousseau and the reforms attempted by Turgot.

25 2. Outline the rise and fall of Napoleon.

25 3. What led to the Industrial Revolution in England? What were its effects upon the lives of the people?

25 4. Show by a brief account of events in France, Prussia, Italy, and the Austrian Empire that the year 1848 was one of revolt, and explain why each of these revolts failed.

25 5. Outline the stages by which national unity was achieved in Italy and in Germany, and point out the parts played by Cavour and Bismarck.

25 6. Explain the need and the effects of the reform bills in England during the nineteenth century. What further extension of the franchise has been made in the twentieth century?

25 7. Write brief explanatory notes on the following: The Holy Alliance; The Monroe Doctrine; The Suez Canal; The Panama Canal; The Hague Conference of 1899.

25 8. What is the purpose of the League of Nations? How is it organized? Give some examples of work that it has done for the betterment of mankind.

LATIN AUTHORS AND SIGHT TRANSLATION. (Time, 2½ hours.)

A. CAESAR, DE BELLO GALLICO, BOOKS IV. AND V.

1. Translate:—

4 *In petenda pace* ejus rei culpam in multitudinem contulerunt, et propter imprudentiam *ut ignosceretur* petiverunt. Caesar questus, quod, cum ultro in continentem legatis missis pacem ab se *petissent*, bellum sine causa *intulissent ignoscere* imprudentiae dixit obsidesque imperavit.

1 (*a.*) What is the literal translation of *in petenda pace?*

1 (*b.*) ut ignosceretur. Why not *ut ignoscerentur?*

Value.

2 (*c.*) Account for the mood of *petissent, intulissent.*

1 (*d.*) What is the subject of *ignoscere?*

2. Translate:—

10 His adductis, in iis filio propinquisque ejus omnibus, quos nominatim evocaverat, consolatus Indutiomarum hortatusque, uti in officio *maneret:* nihilo tamen secius principibus Treverorum ad se convocatis hos singillatim Cingetorigi conciliavit: quod cum merito ejus a se fieri intellegebat, tum *magni interesse* arbitrabatur ejus auctoritatem inter suos quam plurimum valere, cujus tam egregiam in se voluntatem *perspexisset.* Id tulit factum graviter Indutiomarus, suam gratiam inter suos minui, et qui jam ante inimico in nos *animo fuisset, multo* gravius hoc *dolore* exarsit.

7 (*a.*) Account for the mood of *maneret, fuisset;* the mood and the tense of *perspexisset;* the case of *magni, animo, multo, dolore.*

1 (*b.*) What is the subject of *interesse?*

3. Translate:—

4 *His rebus cognitis* a captivis perfugisque Caesar praemisso equitatu confestim *legiones subsequi jussit.* Sed ea *celeritate* atque eo impetu milites ierunt, cum *capite* solo ex aqua exstarent, ut hostes impetum legionum atque equitum sustinere non possent, ripasque *dimitterent* ac se fugae mandarent.

1 (*a.*) Express the thought in *his rebus cognitis* by a Latin clause suitable to the context.

1 (*b.*) Express the thought in *legiones subsequi jussit* by substituting *imperavit* for *jussit* and making all other necessary changes.

3 (*c.*) Account for the case of *celeritate, capite;* the mood of *dimitterent.*

B. Virgil, Selections.

4. Translate:—

4 stetit *illa* tremens, uteroque recusso
insonuere cavae gemitumque *dedere* cavernae.
et, si fata deum, si mens non laeva fuisset,
impulerat ferro Argolicas foedare latebras,
Troiaque nunc staret, Priamique arx alta *maneres.*

1 (*a.*) To what does *illa* refer?

1 (*b.*) Parse *dedere.*

1 (*c.*) Account for the mood and the tense of *maneres.*

5. Translate:—

4 '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* Troiae
teque tuosque iuvat, patet isti ianua leto.

3 (*a.*) Account for the case of *te, nihil;* the mood of *addere.*

6. Translate:—

4 'Quod tibi delato *Ortygiam* dicturus Apollo est,
hic canit et tua *nos* en ultro ad limina mittit.
nos te, Dardania incensa, tuaque arma secuti,
nos tumidum sub te permensi classibus aequor,
idem venturos *tollemus in astra nepotes,*
imperiumque urbi dabimus.

3 (*a.*) Explain the reference in *Ortygiam, hic, nos.*

2 (*b.*) Account for the case of *Ortygiam, idem.*

1 (*c.*) Mention one instance of the fulfilment of the promise *tollemus in astra nepotes.*

Value.

7. Translate:—

3 progeniem sed enim Troiano a sanguine duci
audierat, Tyrias olim quae *verteret* arces;
hinc populum late regem belloque superbum
venturum *excidio* Libyae: sic volvere Parcas.

2 (*a.*) Account for the mood and the tense of *verteret;* the case of *excidio.*

1 (*b.*) Did the prophetic rumours mentioned in this extract prove to be true? Explain very briefly.

2 (*c.*) Scan the lines beginning *progeniem* and *venturum.*

C. Sight Translation.

[In dire distress because winged monsters called Harpies were carrying off all his food, the aged Phineus appealed to Jason and his fellow Argonauts, who were journeying to Colchis in quest of the Golden Fleece.]

32 8. Translate at sight:—

Argonautae primum gladiis Harpyias adorti sunt; cum tamen viderent hoc nihil juvare, duo ex Argonautis, qui alis instructi sunt, in aera se sustulerunt, ut desuper impetum facerent. Quod cum sensissent Harpyiae, rei novitate perterritae statim aufugerunt, neque postea umquam redierunt.

Quo facto, Phineus, ut pro tanto beneficio meritam *gratiam referret,* Jasoni demonstravit, qua ratione Symplegades vitare posset. Symplegades autem duae erant *rupes* ingenti magnitudine, quae a Jove in mari positae erant eo consilio, ne quis ad Colchida perveniret. Hae *parvo intervallo natabant* et, si quid in medium spatium venerat, incredibili celeritate concurrebant. Postquam igitur a Phineo doctus est, quid faciendum esset, Jason, sublatis ancoris, navem solvit, et brevi ad Symplegades appropinquavit. Tum in prora stans, columbam, quam in manu tenebat, emisit. Illa recta via per medium spatium volavit et, priusquam rupes conflixerunt, incolumis *evasit,* cauda tantum amissa. Tum rupes *utrimque* discesserunt; antequam tamen rursus concurrerent, Argonautae, bene intellegentes omnem spem salutis in celeritate positam esse, summa vi remis contenderunt, et navem incolumem perduxerunt.

gratiam referre, show gratitude.
rupis, rock.
parvo intervallo, a short distance apart.
nato are, swim.
evado, ere, evasi, evasum, get away, escape.
utrimque, on both sides, in both directions.

Latin Grammar and Composition. (Time, 2 hours.)

15 1. Write:—

(*a.*) the accusative singular of
palus latior .....
ille homo .....

(*b.*) the ablative singular of
quod iter .....
magna res .....

(*c.*) the genitive plural of
civitas nostra .....
corpus utile .....
ille dies .....
hoc nomen .....

Value.

(*d.*) the accusative plural of

magistratus fortis .....

mare latius .....

(*e.*) the genitive singular of

quod flumen .....

unus quisque .....

hoc genus .....

(*f.*) the ablative singular of

nox .....

cornu .....

dies .....

pedes .....

14 2. Translate into English:—

(*a.*) Nos nostraque omnia in silvas conferemus.

(*b.*) Caesari omnia uno tempore erant agenda.

(*c.*) Quaesivit a me cur abire nollemus.

(*d.*) A Romanis petebant ne sibi nocerent.

(*e.*) Pollicitus est se quam celerrime auxilium missurum esse.

(*f.*) Num putatis vos nobis amicos fuisse?

(*g.*) Eos monebo ut finem orandi faciant.

15 3. Write:—

(*a.*) the second plural present subjunctive active of

iungo .....

eo .....

malo .....

possum .....

(*b.*) the third singular imperfect subjunctive of

fero (active) .....

redeo .....

desum .....

proficiscor .....

(*c.*) the second singular present indicative of

fero (active and passive) .....

malo .....

capio (active and passive) .....

(*d.*) the second singular future indicative of

audio (active) .....

noceo .....

parco .....

nolo .....

utor .....

fio .....

(*e.*) the plural present imperative of

sequor .....

conor .....

(*f.*) the first singular perfect indicative active of

refero .....

malo .....

praesum .....

reddo .....

pello .....

praesto .....

fio .....

persuadeo .....

audeo .....

Value.

4. Translate into Latin:—

4 (*a.*) Do you believe that the Gauls will do what they have promised?

5 (*b.*) They promised to send back the hostages whom they had received.

5 (*c.*) I hope no one will answer that he wishes to go away.

5 (*d.*) Your brother ordered me not to help you.

5 (*e.*) They persuaded Caesar not to give the Germans land in Gaul.

7 (*f.*) On the same night we were informed by our scouts that the cavalry of the enemy had encamped two miles from us.

5 (*g.*) The next year he perceived that he must return to Rome.

5 (*h.*) They asked how great an army was marching against him.

5 (*i.*) They said that they had not injured us.

5 (*j.*) Do you know why we have come into your territories?

5 (*k.*) He makes the camp so large that it cannot easily be surrounded.

PHYSICS. (Time, 2½ hours.)

[*The last question and any other seven constitute a full paper.*]

11 1. (*a.*) A uniform wooden rod 6 cm. square and 50 cm. long is loaded so that it floats upright in water with 30 cm. below the surface. If the rod were placed in a liquid of specific gravity 0.8, what length of the rod would be below the surface?

(*b.*) The area of the large piston of a hydraulic press is 200 square inches and that of the small piston is 5 square inches. What is the mechanical advantage of this machine? Prove that, if there is no friction, the work obtained from this instrument is equal to the work put into it.

11 2. (*a.*) Air is forced into a vessel of volume 1,000 c.c. until it contains 2.58 grams, the temperature being 17° C. Find the pressure of the air in the vessel if the mass of one litre of air at 0° C. and 760 mm. pressure is 1.29 gm.

(*b.*) Define the following terms: heat of fusion, relative humidity, boiling-point.

11 3. (*a.*) If 50 grams of steam at 100° C. are passed into a cavity in a block of ice which is at 0° C., how much ice will be melted, assuming that no heat is lost?

(*b.*) Show by reference to a diagram, in each case, how convection currents may be established in liquids and also in gases. What is the real cause of such currents? Give one example of each from nature.

11 4. (*a.*) At a time when the velocity of sound in air is 350 metres per second what will be the length of the shortest closed tube that will be in resonance with the fundamental note from a tuning-fork of frequency 300?

(*b.*) Write a short note on the influence of temperature on the velocity of sound in air.

(*c.*) Describe, by reference to a diagram, the nature of a sound-wave in air.

11 5. (*a.*) An object is placed before a convex lens of focal length 20 cm. and its image is formed on a screen 30 cm. from the lens. Find the position of the image by calculation. Make the usual diagram.

(*b.*) Explain clearly how the colour of natural objects arises.

11 6. (*a.*) State the law of variation of intensity of illumination with distance from the source and describe how it is used in determining the candle-power of a lamp.

(*b.*) Describe a simple experiment for comparing the magnetic shielding power of iron with that of brass. Use drawings.

Value.

11 7. (*a.*) Describe the human eye as an optical instrument. How is it that a person with normal vision can see distinctly objects at all distances from 10 inches up to infinity?

(*b.*) Describe the electrophorus and explain its action in terms of the electron theory. What is the source of the electrical energy obtained when the cover is discharged?

11 8. Answer part (*a*) and either (*b*) or (*c*).

(*a.*) A helix of insulated wire is wound around a vertical cardboard tube. The circuit is then closed and the N pole of a bar magnet is moved into the coil. Make a drawing of the apparatus so as to show clearly the direction of winding of the helix. Predict, by Lenz's law, the polarity of the upper end of the coil and mark it and the direction of the induced current on the diagram.

(*b.*) A heating-coil of resistance 50 ohms is connected to a 100-volt circuit. Calculate (1) the power in k.w. used by the coil, (2) the heat given off in 5 minutes. (The factor used in converting watts into calories per second is 0.24.)

(*c.*) A cell has an internal resistance of 0.3 ohm and its E.M.F. on open circuit is 1.8 volts. If the poles are connected by a conductor of 1.2 ohms, what would be the reading of a voltmeter connected to the terminals of the cell while the current is flowing?

23 9. (*a.*) From a rifle 64 feet above the water a bullet is shot in a horizontal direction and strikes the water at a horizontal distance of 3,000 feet. What was the average horizontal velocity of the bullet?

(*b.*) A mass of 100 grams, which is free to move, acquires a velocity of 10,000 cm. per second in 10 seconds from rest. What constant force has produced the velocity?

(*c.*) A spring balance would have to be used to compare the weight of a body on the moon with that on the earth. Explain why.

(*d.*) What horizontal force is required to draw a trunk weighing 150 pounds across a floor, if the coefficient of friction is 0.3?

Grade XI., Normal Entrance.

GEOGRAPHY. (Time, 2 hours.)

[*Answer the* first *question and* four *other questions.*]

28 1. Draw a large sketch-map of the four western Canadian provinces. Include and name: (*a*) the Fraser, Columbia, and Saskatchewan-Nelson river systems; (*b*) the Peace, Athabaska, and Skeena rivers; (*c*) four provincial capitals, with Prince Rupert, Kamloops, Nelson, Vancouver, Calgary, Prince Albert, Saskatoon, Brandon, and Churchill; (*d*) the parallel 60° N. and the meridian 120° W.

18 2. (*a.*) Why is it that a December day in British Columbia is (i) cooler than, (ii) shorter than a June day? Illustrate your answer by large and clear diagrams.

(*b.*) Explain why our warmest and coldest months are usually August and January, respectively, rather than June and December.

18 3. (*a.*) "Cities tend to develop wherever there is a break in transportation." To what extent do the cities Montreal, London, and Marseilles justify this statement? Illustrate your answer by sketch-maps.

Value.

(*b.*) What *other* conditions have determined the location and growth of such cities as Hamilton, Winnipeg, and Seattle?

18 4. (*a.*) Halifax, Nova Scotia, and Portland, Oregon, lie very nearly on the same parallel of latitude. What are the climatic differences between these two cities? Explain as fully as possible how these differences are caused.

(*b.*) "The condition of winter rains and dry bright summers has been called Mediterranean climate because it is so prevalent in this region (Southern Europe)."

(i.) Explain fully the reasons for this condition.

(ii.) What areas in North America, Africa (south of the equator), and Australia have a "Mediterranean climate"?

18 5. (*a.*) Name *three* important manufacturing industries carried on in England, and *one* in each of the countries Scotland, Ireland, and Wales. Name one centre associated with each of these manufactures.

(*b.*) In which *two* European countries has water-power been most highly developed? For what purposes is this power utilized?

(*c.*) Select *three* other European countries which are engaged in manufacturing; name the manufactures and one centre associated with each.

18 6. (*a.*) Describe the surface of New Zealand. In what industries are the people of New Zealand principally engaged? What are the chief products of these industries?

(*b.*) (i.) Compare British India with Canada in regard to area and population.

(ii.) What rivers drain the Great Plain of India? Describe the surface of this plain and enumerate the principal crops raised there.

(iii.) Describe the position of these cities and state what special interest attaches to them: Delhi, Calcutta, Karachi, Bombay.

18 7. (*a.*) Enumerate (i) three main sources of the world's *wheat* supply, and name one shipping-point in each; (ii) three main sources of the world's *cotton* supply, naming one shipping-point in each; (iii) two countries that supply the largest *wool* clip, and the chief shipping-point in each.

(*b.*) Name the principal *coffee* producing country, and the chief shipping-point for this product.

(*c.*) From what raw products are the following obtained: starch, chocolate, gutta-percha, jute, copra, olive-oil? Indicate one country of origin for each.

Grade XII., Senior Matriculation.

ALGEBRA. (Time, 3 hours.)

Value.

14 1. (*a*.) Show how to find the sum of n terms and the sum to infinity of a G.P.

(*b*.) The 7th term of an A.P. is 15 and the 21st term is 8. Find the sum of the first 13 terms.

14 2. (*a*.) If $x : a = y : b = z : c$, then $\frac{x^3}{a^2}+\frac{y^3}{b^2}+\frac{z^3}{c^2}=\frac{(x+y+z)^3}{(a+b+c)^2}$.

(*b*.) Find the ratios $x : y : z$ from the equations $3x-2y=3z$, $10y-6z=x$.

14 3. (*a*.) If $x \propto y$, prove $x^2-y^2 \propto xy$.

(*b*.) The weight of a cylinder varies as the square of the radius of the base when the height is constant and as the height when the radius is constant. Two cylinders have their heights in the ratio 17 : 8; find the ratio of the areas of their bases if the first weighs three times as much as the second.

12 4. (*a*.) Show that in the combinations of 40 different things taken 10 at a time, the number of combinations in which a particular thing occurs is one-third of the number in which it does not occur.

(*b*.) How many different arrangements beginning with f and ending with e can be made from the letters of the words, (i) failure, (ii) feature? Explain clearly.

14 5. (*a*.) Write the 5th term of $(2-x)^{12}$.

(*b*.) Expand $(16+3x)^{-\frac{1}{4}}$ to 2 terms.

(*c*.) Find the sum of the series $\frac{3}{4}+\frac{3.5}{4.8}+\frac{3.5.7}{4.8.12}+\ldots$ to infinity.

12 6. A man mortgages property for $10,000 and agrees to pay the money off in 10 equal annual payments, the first to be made a year hence. If money is worth 5%, what is the amount of each payment?

$(1.05)^{10}=1.628895$, $(1.05)^{-10}=0.613913$.

14 7. (*a*.) α and β are the roots of $3x^2+x+2=0$, $(\alpha+1)$ and $(\beta+1)$ are the roots of $y^2-py+q=0$. Find the values of p and q.

(*b*.) Discuss the values imposed upon k when the equation $x^2-kx+5=0$ has (i) equal roots, (ii) real roots, (iii) imaginary roots.

6 8. Solve the equations: $x+y+z=10$, $yz+zx+xy=33$, $(y+z)(z+x)(x+y)=294$.

BIOLOGY. (Time, 3 hours.)

[*Questions are of equal value.*]

1. Compare the teeth of the rabbit or beaver (*a*) with those of the cat or dog and (*b*) with those of the sheep or horse. What specializations are to be noted in each case, and what relation exists between the kind of food eaten by the animal and its teeth?

2. Outline the life-history of the malaria parasite, or of a parasite fungus. Show how the parasite reproduces, how it is carried from host to host, and how it obtains its food. Distinguish between symbionts and commensals, giving examples.

3. Compare the processes of photosynthesis and respiration under the headings: (*a*) the chemical changes involved; (*b*) the energy changes; (*c*) the cells which carry on the work; (*d*) the time during which these processes are carried on.

4. According to the "cell theory," plants and animals are composed of cells and their products. Describe the structure of a unicellular plant and of a unicellular animal. Compare the two. Describe two specialized plant-cells and two specialized animal-cells belonging to higher forms, and show how the structure in each case is related to the work performed.

5. Explain the following terms, giving examples: (*a*) hormone; (*b*) vitamin; (*c*) geotropism, (*d*) chemotropism, (*e*) supertonic, (*f*) isotonic, (*g*) gamete, (*h*) spore.

CHEMISTRY. (Time, 3 hours.)

[*Questions are of equal value. Answer* ten *only. Atomic weights are given at the end of the paper.*]

1. What connection is there between the atomic theory and (*a*) the law of definite proportions, (*b*) the law of multiple proportions? Explain clearly why the formula of water is H_2O.

2. State the laws of (*a*) Le Chatelier, (*b*) DuLong and Petit, (*c*) Faraday, and give an illustration of the usefulness of each law.

3. Arrange the following non-metals, O, S, Cl, Br, I, F, in order of their activity, as in the E.M.F. series of the metals. Give replacement reactions to justify the order of your arrangement.

4. Compare briefly the chemistry of the various members of the nitrogen family (N, P, As, Sb, Bi) and their compounds, with special reference to their hydroxides.

5. Give the physical and chemical properties by which you would recognize : (*a*) bromine, (*b*) nitrogen tetroxide, (*c*) hydrogen peroxide, (*d*) a phosphate, (*e*) a chloride, (*f*) hydriodic acid, (*g*) a sulphate, (*h*) a nitrate.

6. Which hydroxides are amphoteric? Write their formulæ and give equations to show how they would react with (*a*) NaOH, (*b*) hydrochloric acid. Why are solutions of aluminates, alkaline and those of alums, acid?

7. Why are magnesium and zinc not found free in nature, while silver and gold are? How would you account for the fact that hydrogen sulphide will not precipitate zinc sulphide from a zinc chloride solution but will from a zinc acetate solution?

8. Describe any three processes of manufacture in which electrical energy is employed in the production of an element or a compound of industrial importance.

9. 25 grams of $NaNO_3$ are dissolved in 1,000 grams of water. The degree of ionization of the salt in the solution is 70 per cent. What is the freezing-point of the solution?

10. What weight of bromine can be liberated from a concentrated solution of potassium bromide (excess) by the addition of 15 grams of hydrochloric acid (containing 39.1% HCl) and an excess of manganese dioxide?

11. A solution of hydrochloric acid was found to have a normality of 1.05. What volume of water must be added to 500 c.c. of this solution to make it exactly normal?

12. 20 grams of an alloy of zinc and copper (30% copper) were placed in a vessel containing 150 grams of sulphuric acid (25% H_2SO_4). What weight of hydrogen was liberated?

Atomic weights: Na=23, N=14, Br=80, Cl=35.5, Zn=65, S=32.

ENGLISH COMPOSITION. (Time, 3 hours.)

Value.

20 1. Improve each of the following sentences, and state in detail your reasons for the changes made:—

(*a.*) By continuing his depredations, they were so much enraged that a party of them resolved to go and hunt the monster.

(*b.*) "The Gypsy" was perhaps the most peculiar story we read. This was brought about by the fact that the characters and setting were different.

(*c.*) One morning as Major Pendennis, Esq., sat down to his breakfast at his club in Pall Mall, he discovered in his mail two letters of special interest and at the same time very annoying.

(*d.*) I was so uncomfortable that I rolled up my sleeves so far that my arms got sunburned, so I could hardly sleep that night.

(*e.*) Once having made up his mind, you may depend upon it he will never draw back when he has got fully started.

10 2. Write a letter to a prominent business man asking him to place an advertisement in the next issue of your school paper.

15 3. State your opinion as to the effectiveness of the following paragraph, basing your judgment upon considerations of unity and completeness of thought, method of development, coherence, and any other features that occur to you:—

The aim of literary study is not to amuse the hours of leisure; it is to awake oneself, it is to be alive, to intensify one's capacity for pleasure, for sympathy, and for comprehension. It is not to change utterly one's relation with the world. It is not to affect one hour, but twenty-four hours. An understanding appreciation of literature means an understanding appreciation of the world, and it means nothing else. Not isolated and unconnected parts of life, but all of life, brought together and correlated in a synthetic map! The spirit of literature is unifying; it joins the candle and the star, and by the magic of an image shows that the beauty of the greater is in the less. And, not content with the disclosure of beauty and the bringing together of all things whatever within its focus, it enforces a moral wisdom by the tracing everywhere of cause and effect. It consoles doubly—by the revelation of unsuspected loveliness, and by the proof that our lot is the common lot. It is the supreme cry of the discoverer, offering sympathy and asking for it in a single gesture. In attending a University Extension Lecture on the sources of Shakespeare's plots, or in studying the researches of George Saintsbury into the origins of English prosody, or in weighing the evidence for and against the assertion that Rousseau was a scoundrel, one is apt to forget that literature is first and last a means of life, and that the enterprise of forming one's literary tastes is an enterprise of learning how best to use this means of life. People who don't want to live, people who would sooner hibernate than feel intensely, will be wise to eschew literature. They had better, to quote from the finest passage in a fine poem, "sit around and eat blackberries." The sight of a "common bush afire with God" might upset their nerves.

55 4. Draw up a plan and write an expository essay of about 300 words on *one* of the following topics:—

(*a.*) My opinion of the value of examinations.

(*b.*) The finest character I have met in fiction.

(*c.*) How I learned to like poetry.

(*d.*) End-of-the-term feelings.

ENGLISH LITERATURE. (Time, 3 hours.)

Value.

20 1. Write notes on *five* of the following passages, giving the name of the author, the title of the poem, the context, and, as concisely as you can, the meaning:—

(*a.*) His are the quiet steeps of dreamland,
The waters of no more pain.

(*b.*) Still in the dawnlit waters cool
His ghostly Lordship swims his pool.

(*c.*) The devil's walking parody
On all four-footed things.

(*d.*) War's annals will cloud into night
Ere their story die.

(*e.*) We travel the dusty road, till the light of the day is dim,
And sunset shows us spires away on the world's rim.

(*f.*) I pleaded outlaw-wise,
By many a hearted casement, curtained red.

(*g.*) But I, being poor, have only my dreams;
I have spread my dreams under your feet.

13 2. Quote a poem, or a selection of at least fourteen lines from a poem, in Methuen's Anthology. Discuss the poetical effectiveness of this quotation and show clearly in as many ways as you can how it is characteristic of its author.

6 3. After each of the following topics list the names of the three poems in Methuen's Anthology that you think most clearly develop the idea:—

(*a.*) The ugliness of war.
(*b.*) The love of one's own familiar countryside.
(*c.*) The romantic tale of the world.
(*d.*) An interest in the simple things of life.

11 4. Speaking of the short stories of Edgar Allan Poe, Canby remarks: "There is manifest a care that all the attributes of the story, characters, setting, and most of all the style, should lend their suggestive powers to the desired effect."
What appears to you to be the desired effect in "The Masque of the Red Death"? In about two pages, give a careful analysis of the story showing to what extent the attributes mentioned above contribute to this effect.

5 5. (*a.*) Name the story (and its author) in Canby's collection that best illustrates each of the following:—

(*a.*) Suspense and mystery.
(*b.*) Pathos.
(*c.*) A moral situation.
(*d.*) An age of romance.
(*e.*) A reminiscent mood.

8 (*b.*) Assign each of these characters to its story: Hutcheon, the genius, the German Jew, Jupiter, Maister John, Amos Barraclough, Cupidus, Florimond de Champdivers.

10 6. What scene presents the climax in the drama of *Electra*? In support of your answer, outline what happens therein and show the effect on the characters concerned.

9 7. (*a.*) What do you understand by Dramatic Irony?
(*b.*) In a few sentences indicate precisely a moment in each required play at which the effect of Dramatic Irony is clearly felt.

10 8. Briefly suggest several contrasts between Brutus and Antony as leaders of men. By a careful analysis of the funeral orations, show the difference between their methods with the mob.

8 9. In at least a page discuss the meaning of the title *A Doll's House*, and show in detail how the idea is worked out in the play.

FRENCH LANGUAGE. (Time, 3 hours.)

[N.B.—*Lisez les questions avec soin.* Soulignez *les mots que vous changez ou ajoutez.*]

Value.

25 1. Traduction:—

(*a.*) I don't think there is a man in France more ill-served than I.

(*b.*) The famous author was born in the very heart of the city, quite near the market.

(*c.*) Do you think I shall ever speak French without making many mistakes?

(*d.*) It is said with regard to Molière that he had no longer need to read authors, he had only to study the world.

(*e.*) You told me not to talk to any of my friends about it.

10 2. Mettez les verbes en italique au temps convenable:—

(*a.*) Dites à ces dames qu'elles ne *s'en aller* pas tout de suite.

(*b.*) J'ai peine à me persuader que je *pouvoir* être véritablement sa fille; d'autres sauront m'*apprécier*.

(*c.*) Autrefois les Parisiennes *aller* à pied et *sortir* tous les jours.

(*d.*) Depuis combien de temps *dormir*-il? je crains qu'on ne *faire* du bruit.

(*e.*) C'est la seule usine qui *produire* de telles machines.

(*f.*) Il ne parla plus après qu'on le *convaincre* de son erreur et à huit heures précises, nous *partir* tous.

15 3. Composez une phrase avec chaque groupe de mots; ajoutez-en d'autres; faites les changements nécessaires; traduisez en anglais.

(*a.*) académicien, faire, une fois élu, visite de rigueur, sous la coupole.

(*b.*) au jour dit, en plein air, s'amuser, grande fête, un loup.

(*c.*) maîtres, sur-le-champ, battre, aller sur les brisées, dépouiller.

20 4. (*a.*) Donnez le genre de: terrasse, verre, montagne, académie, dictionnaire.

(*b.*) Pluriel de: Le vitrail du château était bleu; ce cristal rose est un vrai bijou.

(*c.*) Adverbes de: fier, prudent, nouveau, bref.

(*d.*) Employez le mot convenable selon le sens de la phrase.

(1.) Nous sommes partis de la —— du marché et une heure après nous sommes revenus au même —— (endroit, place).

(2.) Nous faisons des fautes de français —— mais quand nous aurons passé —— en France nous parlerons bien (quelquefois, quelque temps).

(3.) Le jeune homme a —— son père comme directeur de l'usine mais il n'a pas encore —— faire fortune (réussir à, succéder à).

15 5. Donnez l'équivalent français des mots en italique:—

(*a.*) C'est le plus beau pont du monde *y compris* ceux de Paris.

(*c.*) Ces réunions sont toujours fort *courues*.

(*c.*) Il y a, *bien entendu*, un grand nombre de ces usines.

(*d.*) Il y a des affiches *d'un bout à l'autre* du pays.

(*e.*) Ce critique *se pique* avec raison de pouvoir juger une pièce.

Employez le verbe *devoir* pour traduire:—

(*a.*) I owe you a visit.

(*b.*) He had to go to town.

(*c.*) They must admit the truth.

(*d.*) We ought to have come here.

(*e.*) You ought to write carefully.

Value.
15 6. (*a.*) Placez les prépositions convenables s'il est nécessaire, sinon mettez une croix X.

Notre galant est-il arrivé —— temps? ou —— retard? et est-il allé à la belle maison —— aller voir son amie qu'il espère —— trouver car il veut —— demander —— un officier de ses amis, s'il peut —— conduire tout le monde —— un kilomètre de là, pour pêcher —— la ligne pendant plusieurs —— heures?

(*b.*) Changez les mots en italique pour des pronoms personnels:—

(1.) Les passants qui se promènent *dans cette rue* font *des réflexions.*
(2.) C'est *Pasteur* qui a renouvelé *les sciences.*
(3.) Nous prenons *des notes, en classe.*
(4.) Portez *ces robes à ces dames.*
(5.) *Ces valets?* Ils parlent pour *cette précieuse.*

FRENCH LITERATURE. (Time, 3 hours.)

20 1. Commentez brièvement ce passage (en anglais) et expliquez les expressions en italique. *Ne traduisez pas le passage et ne faites pas un résumé du passage.*

Gorgibus.—Et par où veux-tu donc qu'ils débutent? —— N'est-ce pas un procédé dont vous avez sujet de vous louer toutes deux aussi bien que moi? Est-il rien de plus obligeant que cela? Et ce lien sacré où ils aspirent n'est-il pas un témoignage de l'honnêteté de leurs intentions?

Magdelon.—Ah! mon père, ce que vous dites-là est du dernier bourgeois. Cela me fait honte de vous ouïr parler de la sorte, et vous devriez un peu vous faire apprendre le bel air des choses.

Gorgibus.—Je n'ai que faire ni d'air ni de chanson. Je te dis que le mariage est une chose sainte et sacreé, et que c'est faire en honnêtes gens que de débuter par là.

Magdelon.—Mon Dieu, que, si tout le monde vous ressemblait, un roman serait bientôt fini? La belle chose que ce serait si d'abord Cyrus épousait Mandane, et qu'Aronce de plain-pied fût marié à Clélie!

Gorgibus.—Que me vient conter celle-ci?

Magdelon.—Mon père, voilà ma cousine qui vous dira, aussi bien que moi, que le mariage ne doit jamais arriver qu'après les autres aventures. Il faut qu'un amant, pour être agréable, sache débiter les beaux sentiments, *pousser le doux, le tendre et le passionné,* et que sa recherche soit dans les formes. Premièrement, il doit voir *au temple,* ou à la promenade, ou dans quelque cérémonie publique, la personne dont il devient amoureux; ou bien être conduit *fatalement* chez elle, par un parent ou un ami, et sortir de là tout rêveur et mélancolique. Il cache un temps sa passion à *l'objet* aimé, et *cependant* lui rend plusieurs visites, où l'on ne manque jamais de mettre sur le tapis une question galante, qui exerce les esprits de l'assemblée. Le jour de la déclaration arrive, qui se doit faire ordinairement dans une allée de quelque jardin, tandis que la compagnie s'est un peu éloignée; et cette déclaration est suivie d'un prompt courroux, qui paraît à notre rougeur, et qui, pour un temps, bannit l'amant de notre présence. Ensuite il trouve moyen de nous apaiser, de nous accoutumer *insensiblement* au discours de sa passion, et de tirer de nous cet aveu qui fait tant de peine. Après cela viennent les aventures, les rivaux qui se jettent *à la traverse* d'une inclination établie, les persécutions des pères, les jalousies conçues sur de fausses apparences, les plaintes, les désespoirs, *les enlévements,* et ce qui s'ensuit. Voilà comme les choses se traitent dans les belles manières et ce sont des règles dont, en bonne galanterie, on ne saurait se dispenser. Mais en venir *de but en blanc* à l'union conjugale! Ne faire l'amour qu'en faisant le contrat du mariage, et prendre justement le roman par la queue! Encore un coup, mon père, il ne se peut rien de plus *marchand* que ce procédé; et j'ai mal au coeur de la seule *vision* que cela me fait.

Value.

30 2. Traitez en français l'un des sujet suivants:—

(*a.*) Dans quelle mesure la pièce (*Les Précieuses Ridicules*) est-elle une critique des romans de l'époque?

(*b.*) L'Hôtel de Rambouillet et son influence.

20 3. Mettez en français moderne les expressions suivantes:

(*a.*) Je suis tombé dans la disgrâce de voir une copie dérobée de ma pièce entre les mains des libraires.

(*b.*) Nous leur jouerons une pièce.

(*c.*) Ce que vous dites là est du dernier bourgeois.

(*d.*) La belle chose que ce serait si Aronce de plain-pied fût marié à Clélie.

(*e.*) Ils sont incongrus en galanterie.

(*f.*) Que ton père a la forme enfoncée dans la matière.

(*g.*) Venez nous tendre le conseiller des grâces.

(*h.*) Attachez un peu sur ces gants la réflexion de votre odorat.

(*i.*) Le sublime en est touché délicieusement.

(*j.*) Voyez-vous pas qu'il faut le surcroît d'un fauteuil.

10 4. Traduisez l'un des passages suivants (Si le candidat traduit les deux, le premier seul sera corrigé).

(*a.*) O doux et grand Racine! le meilleur, le plus cher des poètes! Telle fut ma première rencontre avec vous —— Je n'ai pas toujours parlé de vous avec assez d'admiration: je n'ai jamais dit que vous avez créé les caractères les plus vrais qui aient été mis au jour par un poète: je n'ai jamais dit que vous étiez la vie même et la nature même. Vous avez seul offert en spectacle de véritables femmes. Que sont les femmes de Sophocle et de Shakespeare auprès de celles que vous avez animées? Des poupées! Les vôtres ont seules des sens et cette chaleur intime que nous appelons l'âme.

(*b.*) C'est l'antique ville du Puy, s'élevant en amphithéâtre sur le versant de la montagne avec, là-haut, la Vierge immense qu'on aperçoit de tout le pays, si grande qu'un homme peut se promener à l'aise dans l'intérieur de son bras. Elle n'est pas, elle-même, très ancienne mais elle occupe la place d'un autre sanctuaire très ancien, car nous sommes au coeur de la vieille Gaule. Les druides, du temps des Gaulois, ont adoré sur ces sommets et cette espèce d'Acropole auvergnate a servi de refuge pendant des siècles aux populations menacées par la guerre, l'invasion ou le brigandage.

20 5. Traitez (en français) en une dizaine de lignes *deux* des sujets suivants:—

(*a.*) Les vieilles danses françaises.

(*b.*) Les fêtes religieuses des paysans.

(*c.*) La foire aux bestiaux.

(*d.*) Les châteaux de la Renaissance.

GEOMETRY. (Time, 3 hours.)

12 1. Sketch roughly the graphs of the following equations:—

(*a.*) $x-y+2=0$.

(*b.*) $(x-1)\ (x-3)=0$.

(*c.*) $y^2=-4x$.

(*d.*) $9x^2+4y^2=36$.

Value.

11 2. (*a.*) A line segment is drawn from (—4, 2) to 4, —3). What is its length and what is its slope?

(*b.*) Find the normal form of the equation of the line through the two points in (*a*), and hence the distance of the line from (—3, —2).

11 3. (*a.*) (3, 4), (—1, 2), (4, —3) are three vertices of a parallelogram. Where is the fourth vertex and what is the area of the parallelogram?

(*b.*) A point moves so that its distance from the X axis is one-half its distance from the origin. Find the equation of its locus.

11 4. Find the equation of a line which makes an angle $\tan^{-1} 2$ with the line $x-2y=1$ and which passes through the point (5, 1).

11 5. Show that the line $x(1+k) -y(1-k) +1-3k=0$ always passes through a fixed point and find this point. Also find k when the line cuts off an intercept $+3m$ on the X axis.

11 6. (*a.*) Show how to derive the equation of the circle which has its centre at (a, b) and whose radius is c.

(*b.*) Show that $y=mx+a\sqrt{1+m^2}$ always touches the circle $x^2+y^2=a^2$. Will the line $y=2mx+a\sqrt{1+4m^2}$ touch the circle? Explain.

11 7. Show that the areas of similar polygons are as the squares on corresponding sides.

11 8. Points X, Y are taken in the sides BC, CA of a triangle such as BX=⅖ BC, CY=$^3/_7$ CA. If AX, BY meet at O and CO is produced to meet AB at Z, prove AZ=2ZB.

11 9. Through two given points P, Q on a circle draw two parallel chords PX, QY so that the rectangle contained by them may be equal to a given rectangle.

GERMAN GRAMMAR AND COMPOSITION. (Time, 3 hours.)

1. Put into German :—

20 (*a.*)

Hamburg, June 24th, 1930.

My dear Paul,

At last we have arrived in Germany! Early this morning we landed in this beautiful city after a most interesting trip. We were very glad to get here, although we were very sorry, too, to leave the ship upon which we had spent so many happy days. This is the second largest city in Germany and has many fine streets and buildings, but, of course, the most important thing to see is the harbour with its many ships. From here we are going to Cologne, whose splendid cathedral everyone who visits Germany must see. Next week we shall go up the Rhine and then go on to Munich by way of Frankfurt. I shall send you another letter from Cologne, in which I shall have more interesting things to describe.

With kindest regards to your family,

Your old friend,

Fritz.

16 (*b.*) Although Fritz had always thought that it would be pleasanter to travel alone in Europe, he soon learned that their trip would have been much less interesting if Paul's uncle had not gone along with them. Because he knew his country so intimately, he could help them to see and understand the things which interested them

Value.

most, and through him they became better acquainted with the people and customs of the country. When they were in Frankfurt, for example, he showed them the house in which Goethe was born and told them many things they had not known before about the greatest poet of Germany.

18 2. Put into German :—

(1.) He finally succeeded in writing an exercise which pleased his teacher.

(2.) Instead of going to Berlin, they had had to stay a month at Paul's uncle's in Munich.

(3.) Even if one is allowed to do as one likes, one ought to do what is right.

(4.) If we could only stay a year in Germany, we should know where to spend our time.

(5.) If I had been able to go to Germany last year, I should now be able to speak German much better.

(6.) He asked them if they were going to Berlin before they returned to the United States.

9 3. Construct sentences using the following verbs in the third person, singular, of the present, imperfect, and perfect tenses: hinaufſteigen; ſich erinnern; unternehmen.

6 4. Rewrite in the passive :—

(1.) Unſer Lehrer erzählt uns oft dieſe Geſchichte.

(2.) Die Mäuſe fraßen den Biſchof endlich auf.

(3.) Der Biſchof hatte die Tür vorhin zugeſchloſſen.

6 5. Rewrite in indirect speech :—

(1.) Er ſagte, „Ich kann nicht gehen, da ich arbeiten muß."

(2.) Sie antwortete, „Ich bin heute zu Hauſe geblieben und habe meine Arbeit ſchon getan."

(3.) Er erwiderte, „Ich werde das morgen tun, denn ich will das Stück ſehen."

25 6. Write in German a description of a large city. (At least 20 lines.)

GERMAN TRANSLATION. (Time, 3 hours.)

[N.B.—*Questions asked in German must be answered in German.*]

1. Translate :—

9 (*a.*) Gibſon. Ach—ich meine den Rock—der Ärmel iſt ganz falſch eingeſetzt.—Wo haben Sie denn das Ding bauen laſſen ?

Macdonald. Was geht Sie mein Rock an ?

Gibſon. Er iſt ohne Geiſt gemacht, ſage ich Ihnen—gepfuſcht.

Macdonald (böſe). Wollen Sie mich zum beſten haben ?

Gibſon. Fällt mir gar nicht ein—aber ſehen Sie, lieber Herr—(zeigt auf ſeinen Anzug) ſehen Sie einmal das an—das iſt Fall—Geſchmack—Kunſt—Wie—was ?

Macdonald (erſtaunt). Der Menſch ſcheint—(Auf den Kopf weiſend.)

Gibſon. Ein Anzug kann ein zuſammengeflicktes Stück Zeug ſein—es kann aber auch ein Kunſtwerk ſein—und wer das machen kann, iſt ein Kunſtler. Ihren Rock hat ein Pfuſcher gemacht.

Value.

9 (*b.*) Macdonald. Sie haben sich zurückgezogen und sind den ganzen Tag nicht wieder zum Vorschein gekommen—das war sehr verständig,—heut scheint es mir aber sehr zweifelhaft, ob Sie ganz zurechnungsfähig sind. (Ab durch die Mitte.)

Gibson. Das bin ich,—das bin ich!—oh, jetzt verstehe ich, der junge Herr macht seine Späße mit mir, und ich blamiere mich.—Jetzt ist aber meine Geduld zu Ende. Die beiden Häscher sitzen noch im Wirtshaus—ich werde mir erlauben, mit dem jungen Herrn auch einen Witz zu machen. (Ab durch die Mitte.)

5 (*c.*) (1.) Es handelt sich um eine wichtige Angelegenheit.
(2.) Um dich ist mir nicht mehr bange.
(3.) Tun Sie mir den Gefallen, den Menschen fortzuschaffen.
(4.) Da habe ich mir etwas Schönes eingebrockt.
(5.) Sie werden doch mit sich reden lassen!

8 2. Wie kam Gibson als Gast bei Herrn Marsland?

3. Translate:—

8 (*a.*) Diese Ansicht leuchtete vielen ein, aber es wäre doch unerhört gewesen, wenn man solch ein erhabenes Werk einem einfachen Breisacher Kind, wie Hans Liefrink, übertragen hätte, den jeder als dummen Jungen gekannt, den man so aufwachsen sah, ohne je etwas Besonderes an ihm wahrzunehmen,—ja, den man so über die Achseln angesehen und verachtet hatte! Nein, es war schon um des Ansehens der Sache willen nicht zu wagen! So wurde denn Hans Liefrink unwiderruflich abgewiesen.

8 (*b.*) Aber wer beschreibt das Staunen des versammelten Rats, als das Schreiben keine andere, denn die so schnöde zurückgewiesene Zeichnung Hans Liefrinks enthielt, und Dürer schrieb: „er könne ihnen mit dem besten Willen nichts Schöneres empfehlen, als diesen Entwurf seines Freundes und Schülers Hans Liefrink, für dessen vollendete Ausführung er Bürgschaft leiste. Er begreife nicht, wie eine Stadt, die einen solchen Künstler in ihrer Mitte beherberge; sich noch an auswärtige Künstler wende."

10 (*c.*) Da draußen, rings um mich her, liegt eine ganze lachende, lockende Welt im ersten Sonnenglanz der erwachenden Idee des Schönen—alles, was denkt und fühlt, strömt jubelnd dem neu aufgehenden Gestirn zu; die Humanisten, die Kunstler, alles vereint sich im fröhlichen Schaffen, und die Laien, geblendet von dem ungewohnten Licht, sinken ihnen zu Füßen und sagen ‚führet uns!' Ein Kaiser hat einem Albrecht Dürer die Leiter gehalten, auf der er malte—und ein Katsherr von Breisach, dessen Staub einst die Winde verwehen, mißhandelt dessen Lieblingsschüler wie einen Schuft!

5 4. Give the principal parts and the third person singular, present indicative, of the underlined verbs.

10 5. Warum wollte Ruppacher zuerst mit Hans nichts zu tun haben, und wie hat Hans die Maili endlich gewonnen?

Value.

6. Translate:—

9 (*a.*) Karoline. Er wirft sie zu Boden! Sie raffen sich auf — sie laufen davon — er will ihnen nach — Brunhilde winkt ihm, sie gehen zu lassen — er folgt ihr — sie kommen ins Haus.

Rillberg. Habe ich nun nicht mit Recht immer Unruhe gehabt? Das Landhaus liegt so einsam, etwas von der Straße ab, ringsum frei, es könnte uns noch Schlimmers geschehen. Aber ihr gebt ja die Sommerwohnung nicht auf, trotz meiner Warnungen. Und sind wir dieses Jahr nicht an dem siebenten herausgezogen, so sehr ich auch dagegen eiferte? Da habt ihr nun das Unglück.

9 (*b.*) Schulze (ehrlich). Nein, Nachbar, was man so geschimpft nennt niemals. Es ist wohl gesagt worden: Ihr wäret eigensinnig und halsstarrig, ihr wäret rechthaberisch und thätet gern dick, ihr wäret streitsüchtig und grob—aber etwas Unrechtes hat euch niemand bei uns nachgesagt.

Lehmann. Hm, das wäre! Na seht, Schulze, so eigentlich für einen schlechten Kerl seid ihr bei uns auch nicht gehalten worden. Wir haben wohl gemeint: Ihr wäret bissig und starrköpfig, ihr wäret etwas dumm und mit dem Maule vornweg, ihr wäret geizig und mißgünstig, aber etwas Ehrenrühriges hat euch keiner von uns nachgesagt.

10 7. Erzählen Sie die Geschichte von „Einer muß hieraten."

HISTORY. (Time, 3 hours.)

[*Answer any* five *questions.*]

20 1. Compare the achievements of Cartier and Champlain in exploration; of Champlain and Talon in colonization.

20 2. Describe briefly: (*a*) the Jesuit missions to the Indians, (*b*) the character and organization of the Church in New France.

20 3. Illustrate the importance of the fur trade in Canadian history.

20 4. Sketch in your own words the chief waterways by which a trader from Montreal in 1821 might hope to reach Hudson Bay, the Pacific Ocean, the mouth of the Mississippi, and the mouth of the Mackenzie.

20 5. Who were the United Empire Loyalists? Where and in what numbers did they settle? What has been their influence on Canadian history.

20 6. What led to Lord Durham's *Report?* What were its chief recommendations? Sketch the struggle over these recommendations in Canada between 1839 and 1849.

20 7. Describe briefly the historical importance of *three* of the following: Lord Selkirk, Joseph Howe, L. A. Wilmot, Edward Whelan, A. T. Galt, Thomas D'Arcy McGee, Sir George Cartier, and Sir James Douglas.

20 8. Sketch the stages in the movement towards Confederation in 1867 and in the later extension from sea to sea.

20 9. Describe the railway systems of Canada and indicate their importance, both economically and politically.

20 10. In what ways has Canada progressed since Confederation?

LATIN AUTHORS. (Time, 3 hours.)

Value.

17 1. Translate:—

Quare, si *propter socios*, nulla ipsi iniuria lacessiti, maiores nostri cum Antiocho, cum Philippo, cum Aetolis, cum Poenis bella gesserunt, *quanto vos* studiosius convenit, iniuriis provocatos, sociorum salutem una cum imperii vestri dignitate *defendere*, praesertim cum de maximis vestris vectigalibus agatur? Nam ceterarum provinciarum vectigalia, Quirites, tanta sunt, ut *iis* ad ipsas provincias tuendas vix contenti esse possimus; Asia vero tam opima est ac fertilis, ut et ubertate agrorum et varietate fructuum et magnitudine pastionis et multitudine earum rerum, quae *exportentur*, facile omnibus *terris antecellat*. Itaque haec *vobis* provincia, Quirites, si et belli utilitatem et pacis dignitatem retinere vultis, non modo a calamitate, sed etiam metu calamitatis est defendenda.

(*a*.) Account for the case of *quanto, vos, iis, terris, vobis;* the mood of *defendere, exportentur, antecellat.*

(*b*.) Justify (briefly) Cicero's use of *propter socios* in reference to the Punic wars.

14 2. Translate:—

Iam *quantum consilio*, quantum dicendi gravitate et copia valeat, in quo ipso inest quaedam dignitas imperatoria, vos, Quirites, *hoc ipso ex loco* saepe cognostis. Fidem vero eius quantam inter socios existimari putatis, quam hostes omnes omnium generum sanctissimam iudicarint? Humanitate iam tanta est, ut difficile dictu *sit*, utrum hostes magis virtutem eius pugnantes timuerint an mansuetudinem victi *dilexerint*. Et quisquam dubitabit, quin huic hoc tantum bellum permittendum sit, qui ad omnia nostrae *memoriae* bella conficienda divino quodam consilio natus esse *videatur?*

(*a*.) Account for the case of *quantum, consilio, memoriae;* the mood of *dilexerint, videatur.*

(*b*.) Explain the reference in *hoc ipso ex loco.* What is the subject of *sit?*

(*c*.) What and where was *Caieta, Cyzicus, Numantia?*

14 3. Translate:—

Reliquum est, ut de Q. Catuli auctoritate et sententia dicendum esse videatur. Qui cum ex vobis quaereret, si in uno Cn. Pompeio omnia *ponerentis*, si quid eo factum esset, in quo spem *essetis* habituri, cepit magnum suae virtutis fructum ac dignitatis, cum omnes una prope voce in eo ipso vos spem habituros esse dixistis. Etenim talis est vir, ut nulla res tanta sit ac tam difficilis, quam ille non et consilio regere et integritate tueri et virtute conficere *possit*. Sed in hoc ipso ab eo vehementissime dissentio, quod, quo minus certa est hominum ac minus diuturna vita, hoc magis res publica, dum per deos immortales licet, frui debet summi viri *vita* atque virtute.

(*a*.) Account for the mood and the tense of *ponerentis;* the mood of *essetis, possit;* the case of *vita.*

(*b*.) What was the other objection advanced by Catulus and (very briefly) how did Cicero answer it?

(*c*.) Who was *Gabinius, Hortensius, Medea?*

10 4. Translate:—

his ego nec metas rerum nec tempora pono;
imperium sine fine dedi. quin *aspera Iuno*,
quae mare nunc terrasque metu caelumque fatigat,
consilia in melius referet, mecumque fovebit
Romanos, rerum dominos, gentemque togatam.
sic placitum. veniet lustris labentibus aetas,
cum *domus Assaraci Phthiam* clarasque Mycenas
servitio premet ac victis dominabitur Argis.

Value.

(*a.*) State two causes of Juno's hostility towards the Trojans.

(*b.*) Explain the reference and the implication in *domus Assaraci.*

(*c.*) Where was *Phthia?* Why is it specifically mentioned here?

20 5. Translate:—

'Vade age, *nate,* voca Zephyros et labere pennis,
Dardaniumque ducem, Tyria Karthagine qui nunc
exspectat fatisque datas non respicit urbes,
alloquere, et celeres defer *mea* dicta per auras.
non illum nobis genetrix pulcherrima talem
promisit, Graiumque ideo bis vindicat armis;
sed fore, qui gravidam imperiis belloque frementem
Italiam regeret, genus alto a sanguine Teucri
proderet, ac totum sub leges *mitteret* orbem.
si nulla accendit tantarum gloria rerum
nec super ipse sua molitur laude laborem,
Ascanione pater Romanas invidet arces?
quid struit? aut qua spe inimica in gente moratur
nec prolem Ausoniam et Lavinia respicit arva?
naviget: haec summa est; hic *nostri nuntius* esto?

(*a.*) Explain the reference in *nate, mea.*

(*b.*) Account for the mood of *mitteret, naviget;* the case of *nostri, nuntius.*

(*c.*) Scan, with comments, the lines beginning *Vade, exspectat, naviget.*

10 6. Translate:—

huius in adventum iam nunc et Caspia regna
responsis horrent divum et *Maeotia tellus,*
et septemgemini turbant trepida ostia Nili.
nec vero *Alcides* tantum telluris obivit,
fixerit aeripedem cervam licet, aut Erymanthi
pacarit nemora, et *Lernam tremefecerit arcu;*
nec qui *pampineis* victor iuga flectit habenis
Liber, agens celso Nysae de vertice tigres.

(*a.*) By whom, and to whom, are these lines spoken?

(*b.*) Explain the reference in *huius, Alcides, Lernam tremefecerit arcu.*

(*c.*) Account for the epithet *pampineis;* the mood of *pacarit.*

(*d.*) Where was *Maeotia tellus?*

5 7. Translate:—

salve, magna parens frugum, Saturnia tellus,
magna virum: tibi res antiquae laudis et artis
ingredior, *sanctos* ausus *recludere fontes,*
*Ascraeum*que cano Romana per oppida *carmen.*

(*a.*) Explain the reference in *sanctos recludere fontes, Ascraeum, carmen.*

10 8. Within about a page give an account of *either* the career of Pompey *or* the life and the works of Virgil.

LATIN PROSE COMPOSITION, SIGHT TRANSLATION, AND ROMAN HISTORY. (Time, 3 hours.)

A. LATIN PROSE COMPOSITION.

45 1. Translate into Latin:—

(*a.*) Do not think that it is possible for us to injure our country without injuring ourselves.

(*b.*) I am afraid that they cannot help thinking that we have not wished to help them.

Value.

(*c.*) So far were we from injuring you that we urged the soldiers to spare you.

(*d.*) How happens it that you have never been informed that the city has been taken by the enemy?

(*e.*) The Senate passed a resolution that all should be present at daybreak.

(*f.*) He told us so many falsehoods that no one believed him when he was speaking the truth.

(*g.*) They said that they had not gone away against their will.

B. Translation at Sight.

35 2. Translate into English:—

Post haec mala Carthaginienses a Regulo duce, quem ceperant, petiverunt, ut Romam proficisceretur, et pacem a Romanis obtineret, ac permutationem captivorum faceret. Ille Romam cum venisset, inductus in senatum, nihil quasi Romanus egit, dixitque se ex illa die, qua in potestatem Afrorum venisset, Romanum esse desisse. Itaque et uxorem a complexu removit et senatui suasit, ne pax cum Poenis fieret: illos enim fractos tot casibus spem nullam habere; se tanti non esse, ut tot milia captivorum propter unum se et senem et paucos, qui ex Romanis capti essent, redderentur. Itaque obtinuit. Nam Afros pacem petentes nullus admisit. Ipse Carthaginem rediit, offerentibusque Romanis, ut eum Romae tenerent, negavit se in ea urbe mansurum, in qua, cum Afris serviisset, dignitatem honesti civis habere non posset. Regressus igitur ad Africam omnibus suppliciis exstinctus est.

C. Roman History.

20 3. Write a brief note on *eight* of the following: Lavinium, Numa, nobiles, Veii, Vestal Virgins, Trebia, delenda est Carthago, Terence, Rubicon, Varus.

4. Write a note (half a dozen lines) on each of the following: Social war, Mithradates, Silver Age.

Physics. (Time, 3 hours.)

[*Answer question* 1 *and any* seven *of the remainder.*]

6 1. (*a.*) How many seconds would it take an engine pulling with a force of 2 tons more than friction to get a 600-ton train from rest up to a speed of 60 miles per hour on a level track?

5 (*b.*) A jackscrew operated by a lever-arm 3 ft. long has 4 threads to an inch. Neglecting friction, what will be its mechanical advantage and what load can be lifted by a force of 10 lb. at the end of the lever-arm?

5 (*c.*) At 2 cents per kilowatt-hour, what would it cost to run a 1-horse-power motor continuously for a year?

4 2. (*a.*) Write a short note on the acceleration of a body which is moving with constant speed in the circumference of a circle.

4 (*b.*) The standard pressure of a gas is 76 cm. Express this in dynes per sq. cm., given that the density of mercury is 13.6 gm. per c.c.

4 (*c.*) Draw a simple diagram of a common pump with the piston moving upward and show on the diagram the distance which may not be more than 34 feet.

6 3. (*a.*) How do we explain the phenomena of gas-pressure and Boyle's Law with the help of the molecular theory?

6 (*b.*) A certain steel wire when stretched with a weight of 10 kilograms is found to have a vibration frequency of 250. What tension would be needed to make it give a note an octave higher? How could we calculate the frequency of a brass wire of equal diameter and under equal tension?

Value.

6 4. (*a.*) State Doppler's Principle. If the horn of an automobile has a frequency of 250 per second, what will be its apparent pitch to an observer as the automobile is approaching him at a speed of 80 ft. per sec.?

6 (*b.*) 40 gm. of ice at 0° C. and 8 gm. of steam at 100° C. are added to a 150-gram copper calorimeter containing 400 grams of water at 20° C. Find the resulting temperature. (The specific heat of copper is .09.)

6 5. (*a.*) Find the number of calories in one B.T.U. and the latent heat of fusion of ice in British units.

6 (*b.*) Write a note on the efficiencies of different types of heat-engines.

6 6. (*a.*) A convex lens has a focal length of 10 cm. An object is placed within this focal length and its image is found to be 12 times as high as the object. Calculate the position of the image and draw the usual diagram.

6 (*b.*) What is the theoretical value of the magnifying power of the above lens? How would you find it by experiment?

6 7. (*a.*) Describe with diagrams the formation of a primary rainbow.

6 (*b.*) Write a note on spectrum analysis, showing how it enables us to determine the presence of different elements in the sun.

6 8. (*a.*) What are the properties of lines of magnetic force? Show how this conception of lines of force is used in the study of dynamos.

6 (*b.*) Given that the resistance of a platinum wire 1/1000 inch in diameter and 2 ft. long is 60 ohms, what length would have a resistance of 100 ohms if the diameter is 2/1000 inch? What would be the effect of a change in temperature?

6 9. (*a.*) Explain the action of a simple voltaic cell. With references to the electron theory, discuss the statement of the text that "the hydrogen ions migrate towards the copper plate and give up their charges to it."

6 (*b.*) Draw a diagram showing some of the transformations in a modern electrical-power system. Why must the current be alternating and why are all these transformations made?

TRIGONOMETRY. (Time, 3 hours.)

[N.B.—*Sufficient data are appended in the table.*]

15 1. (*a.*) Prove $\cos (180 + A) = -\cos A$.

(*b.*) Find all the values of A between 0° and 360° such that

$$\sec^2 A + (1 - \sqrt{3}) \tan A - 1 - \sqrt{3} = 0.$$

(*c.*) Sketch the graph of $y = \sin x$ and also of $y = \cos x$ (two figures), as x ranges from 0° to 360°. Mark an ordinate on each graph to show that $\sin (270 + A) = -\cos A$.

15 2. In any triangle prove:—

(*a.*) $\dfrac{a}{\sin A} = \dfrac{b}{\sin B} = \dfrac{c}{\sin C} = 2R.$

(*b.*) $\tan \dfrac{A - B}{2} = \dfrac{a - b}{a + b} \cot \dfrac{C}{2}.$

(*c.*) $a (b \cos C - c \cos B) = b^2 - c^2.$

15 3. (*a.*) Prove $\dfrac{\sin 2A + \sin 3A}{\cos 2A - \cos 3A} = \cot \dfrac{A}{2}.$

Value.

(*b.*) Prove $2 \sin x + \tan x = \dfrac{2 + \sec x}{\operatorname{cosec} x}$.

(*c.*) If r is radius of the inscribed circle, and r_1, r_2, r_3 are the radii of the escribed circles remote from A, B, C, respectively, prove $\dfrac{r_1 - r}{a} + \dfrac{r_2 - r}{b} = \dfrac{c}{r_3}$.

10 4. In a circle of radius 10 in. a chord is drawn which subtends at the centre the angle 42° 18′. Find the difference in the length of the chord and of the arc on which it stands.

15 5. Given $a = 6.44$, $b = 2.21$, $C = 84° 36'$, find A, B, c and the area using logarithms throughout.

10 6. A and B are two consecutive milestones on a straight road running due North. From A a spire is observed to be N. 19° 27′ W., and from B the bearing of the spire is N. 75° 57′ W. Find the shortest distance from the spire to the road.

10 7. A hemispherical bowl, centre C, radius r, rests with its lowest point O on a horizontal plane. It is tilted until the line CO makes an angle θ with the vertical. Prove that the height of O above the plane is now $2r \sin^2 \dfrac{\theta}{2}$.

10 8. Given the data in the accompanying diagram, show that $x = \dfrac{(b \sec \alpha - m) \sin \beta}{\cos (\alpha + \beta)}$.

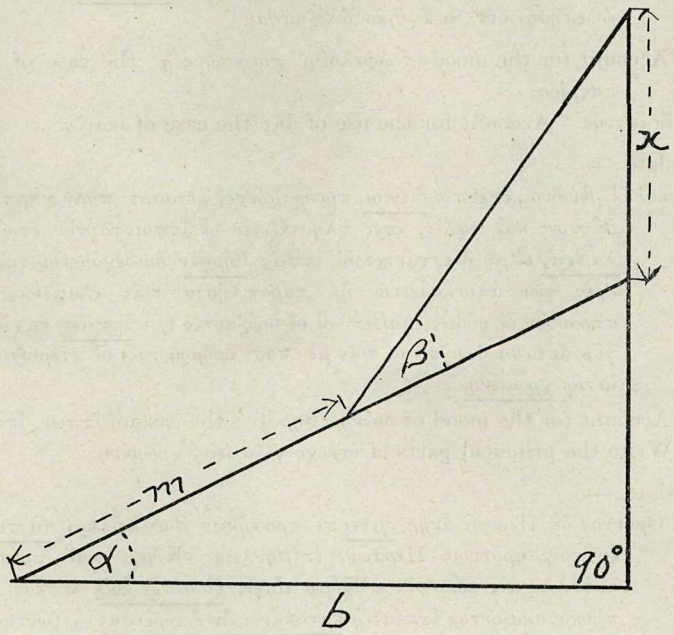


TABLE.

angle	cos	cot	log sin	log cos	log tan	log cot
19° 27′	.9429	2.8318	$\bar{1}$.52242	$\bar{1}$.97448	$\bar{1}$.54794	.45206
28° 15′	.8809	1.8611	$\bar{1}$.67515	$\bar{1}$.94492	$\bar{1}$.73023	.26977
42° 18′	.7396	1.0996	$\bar{1}$.82802	$\bar{1}$.86902	$\bar{1}$.95901	.04099
75° 57′	.2428	.2503	$\bar{1}$.98681	$\bar{1}$.38519	.60162	$\bar{1}$.39838
84° 36′	.0941	.0945	$\bar{1}$.99807	$\bar{2}$.97363	1.02444	$\bar{2}$.97556

Number	Logarithm	Number	Logarithm
1.8	.25527	6.44	.80889
2	.30103	6.608	.82007
2.21	.34439	7.085	.85034
π(3.1416)	.49715	7.383	.86823
4.23	.62634	8.65	.93702

GREEK AUTHORS. (Time, 3 hours.)

Value.

1. Translate :—

14 ἐπειδὴ δὲ Κῦρος ἐκάλει, λαβὼν ὑμᾶς ἐπορευόμην, ἵνα, εἴ τι δέοιτο, ὠφελοίην αὐτὸν ἀνθ' ὧν εὖ ἔπαθον ὑπ' ἐκείνου. ἐπεὶ δὲ ὑμεῖς οὐ βούλεσθε συμπορεύεσθαι, ἀνάγκη δή μοι ἢ ὑμᾶς προδόντα τῇ Κύρου φιλίᾳ χρῆσθαι ἢ πρὸς ἐκεῖνον ψευσάμενον μεθ' ὑμῶν ἰέναι. εἰ μὲν δὴ δίκαια ποιήσω οὐκ οἶδα, αἱρήσομαι δ'οὖν ὑμᾶς, καὶ σὺν ὑμῖν ὅ τι ἂν δέῃ πείσομαι. καὶ οὔποτε ἐρεῖ οὐδεὶς ὡς ἐγὼ, Ἕλληνας ἀγαγὼν εἰς τοὺς βαρβάρους, προδοὺς τοὺς Ἕλληνας τὴν τῶν βαρβάρων φιλίαν εἱλόμην, ἀλλ' ἐπεὶ ὑμεῖς ἐμοὶ οὐ θέλετε πείθεσθαι οὐδὲ ἕπεσθαι, ἐγὼ σὺν ὑμῖν ἕψομαι καὶ ὅ τι ἂν δέῃ πείσομαι. νομίζω γὰρ ὑμᾶς ἐμοὶ εἶναι καὶ πατρίδα καὶ φίλους καὶ συμμάχους, καὶ σὺν ὑμῖν μὲν ἂν οἶμαι εἶναι τίμιος ὅπου ἂν ὦ, ὑμῶν δὲ ἔρημος ὢν οὐκ ἂν ἱκανὸς εἶναι οἶμαι οὔτ' ἂν φίλον ὠφελῆσαι οὔτ' ἂν ἐχθρὸν ἀλέξασθαι.

6 (*a.*) Account for the mood of ὠφελοίην, ποιήσω, δέῃ ; the case of προδόντα, φιλίᾳ, πατρίδα.

2 (*b.*) ἂν ἱκανός. Account for the use of ἄν ; the case of ἱκανὸς.

2. Translate :—

8 καὶ οἱ μὲν ὄνοι, ἐπεί τις διώκοι, προδραμόντες ἕστασαν· πολὺ γὰρ τῶν ἵππων ἔτρεχον θᾶττον· καὶ πάλιν, ἐπεὶ πλησιάζοιεν οἱ ἵπποι ταὐτὸν ἐποίουν, καὶ οὐκ ἦν λαβεῖν, εἰ μὴ διαστάντες οἱ ἱππεῖς θηρῷεν διαδεχόμενοι τοῖς ἵπποις. τὰ δὲ κρέα τῶν ἁλισκομένων ἦν παραπλήσια τοῖς ἐλαφείοις, ἁπαλώτερα δέ. στρουθὸν δὲ οὐδεὶς ἔλαβεν· οἱ δὲ διώξαντες τῶν ἱππέων ταχὺ ἐπαύοντο· πολὺ γὰρ ἀπέσπα φεύγουσα, τοῖς μὲν ποσὶ δρόμῳ, ταῖς δὲ πτέρυξιν αἴρουσα, ὥσπερ ἱστίῳ χρωμένη.

4 (*a.*) Account for the mood of διώκοι, θηρῷεν ; the case of ἵππων, ἱππέων.

3 (*b.*) Write the principal parts of ἔτρεχον, λαβεῖν, χρωμένη.

3. Translate :—

9 Ὀρόντας δέ, Πέρσης ἀνήρ, γένει τε προσήκων βασιλεῖ καὶ τὰ πολέμια λεγόμενος ἐν τοῖς ἀρίστοις Περσῶν, ἐπιβουλεύει Κύρῳ, καὶ πρόσθεν πολεμήσας, καταλλαγεὶς δέ. οὗτος Κύρῳ εἶπεν, εἰ αὐτῷ δοίη ἱππέας χιλίους, ὅτι τοὺς προκατακαίοντας ἱππέας ἢ κατακάνοι ἂν ἐνεδρεύσας ἢ ζῶντας πολλοὺς αὐτῶν ἂν ἕλοι καὶ κωλύσειε τοῦ καίειν ἐπιόντας, καὶ ποιήσειεν ὥστε μήποτε δύνασθαι αὐτοὺς ἰδόντας τὸ Κύρου στράτευμα βασιλεῖ διαγγεῖλαι. τῷ δὲ Κύρῳ ἀκούσαντι ταῦτα ἐδόκει ὠφέλιμα εἶναι, καὶ ἐκέλευσεν αὐτὸν λαμβάνειν μέρος παρ' ἑκάστου τῶν ἡγεμόνων.

4 (*a.*) Account for the case of γένει, τὰ πολέμια, ἐπιόντας, ὠφέλιμα.

1 (*b.*) εἰ αὐτῷ δοίη..... κατακάνοι ἄν. Write in Greek the direct form for these five words.

1 (*c.*) In three or four lines state the outcome of this incident.

Value.

4. Translate:—

14 ἐνταῦθα Γαυλίτης παρών, φυγὰς Σάμιος, πιστὸς δὲ Κύρῳ, εἶπε, καὶ μήν, ὦ Κῦρε, λέγουσί τινες ὅτι πολλὰ ὑπισχνεῖ νῦν διὰ τὸ ἐν τοιούτῳ εἶναι, τοῦ κινδύνου προσιόντος· ἂν δὲ εὖ γένηταί τι, οὐ μεμνήσεσθαι σέ φασιν· ἔνιοι δὲ οὐδ', εἰ μεμνῇό τε καὶ βούλοιο, δύνασθαι ἂν ἀποδοῦναι ὅσα ὑπισχνεῖ. ἀκούσας ταῦτα ἔλεξεν ὁ Κῦρος, ἀλλ' ἔστι μὲν ἡμῖν, ὦ ἄνδρες, ἡ ἀρχὴ ἡ πατρῴα πρὸς μὲν μεσημβρίαν μέχρι οὗ διὰ καῦμα οὐ δύνανται οἰκεῖν ἄνθρωποι, πρὸς δὲ ἄρκτον μέχρι οὗ διὰ χειμῶνα· τὰ δ' ἐν μέσῳ τούτων πάντα σατραπεύουσιν οἱ τοῦ ἐμοῦ ἀδελφοῦ φίλοι. ἢν δ' ἡμεῖς νικήσωμεν, ἡμᾶς δεῖ τοὺς ἡμετέρους φίλους τούτων ἐγκρατεῖς ποιῆσαι. ὥστε οὐ τοῦτο δέδοικα μὴ οὐκ ἔχω ὅ τι δῶ ἑκάστῳ τῶν φίλων, ἂν εὖ γένηται, ἀλλὰ μὴ οὐκ ἔχω ἱκανοὺς οἷς δῶ. ὑμῶν δὲ τῶν Ἑλλήνων καὶ στέφανον ἑκάστῳ χρυσοῦν δώσω.

2 (*a.*) Write the principal parts of ὑπισχνεῖ, ἀκούσας.

2 (*b.*) Account for the case of κινδύνου, ἡμῖν.

1 (*c.*) What is the subject of δεῖ?

3 (*d.*) Account for the mood of νικήσωμεν, γένηται, ἔχω.

5. Translate:—

8 σχεδὸν δ' ὅτε ταῦτα ἦν καὶ ἥλιος ἐδύετο. ἐνταῦθα δ' ἔστησαν οἱ Ἕλληνες καὶ θέμενοι τὰ ὅπλα ἀνεπαύοντο· καὶ ἅμα μὲν ἐθαύμαζον ὅτι οὐδαμοῦ Κῦρος φαίνοιτο, οὐδ' ἄλλος ἀπ' αὐτοῦ οὐδεὶς παρείη· οὐ γὰρ ᾔδεσαν αὐτὸν τεθνηκότα, ἀλλ' εἰκαζον ἢ διώκοντα οἴχεσθαι ἢ καταληψόμενόν τι προεληλακέναι· καὶ αὐτοὶ ἐβουλεύοντο, εἰ αὐτοῦ μείναντες τὰ σκευοφόρα ἐνταῦθα ἄγοιντο ἢ ἀπίοιεν ἐπὶ τὸ στρατόπεδον. ἔδοξεν αὐτοῖς ἀπιέναι· καὶ ἀφικνοῦνται ἀμφὶ δόρπηστον ἐπὶ τὰς σκηνάς.

1 (*a.*) Is ἔστησαν the first aorist or the second aorist? Give the reason for your answer.

3 (*b.*) Account for the mood of φαίνοιτο, ἄγοιντο; the tense of καταληψόμενόν.

1 (*c.*) Write the principal parts of ἀφικνοῦνται.

1 (*d.*) Describe briefly the situation which confronted the Greeks on their return to the camp.

4 6. (*a.*) Describe carefully the position of Cunaxa, Ephesus, Issi, Maeander, Miletus, Tarsi. Give the date of Cyrus' Expedition.

8 (*b.*) Within about a page *either* give an account of the battle of Cunaxa *or* describe the character of Cyrus as portrayed by Xenophon.

GREEK GRAMMAR AND COMPOSITION, AND HISTORY. (Time, 3 hours.)

3 1. (*a.*) Decline in the singular: κρέας, βοῦς, ὄρνις.

3 (*b.*) Decline in the plural: βασιλεύς, ἰχθύς, ἀνήρ.

6 (*c.*) Decline throughout: ναῦς, τριήρης, ἐγώ.

3 2. (*a.*) Decline in the singular (all genders): ἡδύς, μέγας.

3 (*b.*) Decline throughout (all genders): ἡδίων.

2 (*c.*) Compare: μέγας, κακός, ἀσφαλής, δικαίως.

12 3. Write the principal parts of γιγνώσκω, ἔχω, λανθάνω, μιμνήσκω, δύναμαι, ὁράω, φαίνω, γίγνομαι.

Value.

4 4. (*a.*) Write the *third singular* of the following: aorist subjunctive passive of λύω; future indicative active of φαίνω; pluperfect indicative middle of λείπω; present indicative active of φημί.

4 (*b.*) Write the *first plural* of the following: second aorist subjunctive active of δίδωμι; second aorist optative active of ἵστημι; present optative middle of τιμάω; imperfect indicative active of δηλόω.

8 5. Write a short sentence in Greek to illustrate each of the following:—

(1.) Genitive absolute.
(2.) Dative of the possessor.
(3.) Predicative accusative.
(4.) A present contrary to fact conditional sentence.
(5.) A past general conditional sentence.
(6.) A conditional relative sentence.
(7.) One use of πρίν.
(8.) One use of the verbal adjective.

6. Translate into Greek:—

4 (1.) But the king would never praise me if I should wrong his friends.

4 (2.) Let us deliberate, fellow-soldiers, whether it is necessary for us to proceed by land.

4 (3.) I shall delay in order that the messengers may fear that we shall not make the truce.

4 (4.) We are in doubt whether to burn the ships which we have made.

4 (5.) They perceived that the light-armed foot-soldiers had sacked the village.

4 (6.) He said that it would have been well if they had done this.

4 (7.) Cyrus planned that he might not be in his brother's power.

4 (8.) They saluted Orontas, although they knew that he was being led to death.

20 7. Write a concise note (about *two lines* on each) on *any twenty*:—

Aegospotami, Arbela, Ariadne, Aristophanes, Aristotle, Chaeronea, Corcyra, Delian League, Elgin Marbles, Epaminondas, Helots, Hermes, Hippocrates, Long Walls, "medizing," Miltiades, Nausicaa, Nicias, Olympiad, Pentelicus, Phidias, Pindar, Pnyx, Rhodes, Septuagint, Simonides, Solon, Stoicism, Theocritus, "wooden walls."

Matriculation Course, Home Economics (A).

FOODS AND COOKERY.

PART I. (Time, 30 minutes.)

Total, **50** Marks.

I. Some of the following statements are true and some are false. Place a plus (+) sign in front of those you think are true, and a zero (0) sign in front of those you think are false.

DO NOT GUESS.

Example: (+) Apples are rich in pectin.
(0) High school students should go without breakfast.

( ) 1. Overripe fruit makes the best jelly.
( ) 2. Cabbage should be boiled for 40 minutes.
( ) 3. Shredded wheat biscuits are composed of the whole-wheat grain.
( ) 4. Dinner-napkins should be placed at the left of the forks with the open edges at the top and left.
( ) 5. Soup should be taken from the tip of the spoon to prevent spilling.
( ) 6. Uncooked cereals which are sold in bulk are more economical to buy than packaged cereals.
( ) 7. A can of peas, No. 2, usually costs more than a can No. 4.
( ) 8. Too much mixing toughens pastry.
( ) 9. The cost of food can be decreased by increasing the amount of cereals in the diet.
( ) 10. The most satisfactory method of making beef broth is to sear the meat and then place in cold water, gradually bringing it to the boiling-point.
( ) 11. The greater the amount of connective tissue, the tougher the meat will be.
( ) 12. The final beating in making a butter cake should not exceed 2 minutes.
( ) 13. It is economy to save the jar rubbers for canning from one season to another.
( ) 14. The use of Certo in making jams should be discouraged.
( ) 15. For a small family it is economy to buy young carrots in quantity.
( ) 16. Milk should always be placed on the top shelf of the refrigerator to prevent the absorption of odours.
( ) 17. A water ice is made with a custard basis.
( ) 18. Water surrounding custards while baking should be kept below the boiling-point.
( ) 19. Yeast plants grow best at a temperature between 75°–90° F.
( ) 20. Cream for whipping should contain 15% fat.
( ) 21. In deep-fat frying, should the fat catch fire, it is best to pour water over it.
( ) 22. In canning, one is confident of killing spores if the temperature is raised to boiling-point.
( ) 23. Canning by the pressure cooker is a great saving of time.
( ) 24. A banana with black spots on the skin is unfit for eating.

II. Below is given a series of statements each of which is completed in three or more ways. *Underline* the one you consider correct.

1. Fruit juices jell when the following are present:—
   (1.) Acid and sugar.
   (2.) Acid and pectin.
   (3.) Acid, sugar, and pectin.
   (4.) Sugar and pectin.
2. For the purpose of keeping canned fruit it is necessary to:—
   (1.) Sterilize it.
   (2.) Use sugar.

(3.) Destroy and exclude micro-organisms.
(4.) Use a jar with a wide mouth.

3. Sanitary kitchen walls should be finished with:—
(1.) Light wall-paper.
(2.) Water paint.
(3.) Rough plaster.
(4.) Oil paint.

4. Mazola is obtained from:—
(1.) Cotton-seed.
(2.) Barley.
(3.) Corn.
(4.) Rye.

5. We knead bread before putting it in the pans:—
(1.) To make it light.
(2.) To distribute gas bubbles.
(3.) To improve the flavour.
(4.) To increase the growth of the yeast plants.

6. A good rule to observe in buying meat is to spend:—
(1.) Less than you do for fruit and vegetables.
(2.) Same amount as for eggs.
(3.) More than you do for bread.
(4.) None at all.

7. When it is necessary to remove crumbs from the table before the dessert is served it is best to use:—
(1.) A brush and tray.
(2.) A napkin and plate.
(3.) A metal scraper and tray.
(4.) A knife and plate.

8. The chair at the dining-table should be placed directly in front of the cover with the front edge of the seat:—
(1.) Even with the edge of the table.
(2.) Three inches under the edge of the table.
(3.) Entirely under the table.
(4.) Three inches away from the edge of the table.

9. The most desirable way of cooking chuck meat is:—
(1.) Frying.
(2.) Pot-roasting.
(3.) Oven-roasting, using no water.
(4.) Broiling.

10. Gummy jelly is caused by:—
(1.) Too much pectin.
(2.) Over-cooking.
(3.) Under-cooking.
(4.) Too much acid.

11. Fondant should be cooked to the:—
(1.) Soft-ball stage.
(2.) Crack stage.
(3.) Thread stage.
(4.) Hard-ball stage.

Value.

12. It is advisable to have a flour of high gluten content in making:—
    (1.) Pie crust.
    (2.) Cake.
    (3.) Yeast bread.
    (4.) Muffins.
13. Muffins are made tough by:—
    (1.) Too much fat.
    (2.) Too much beating.
    (3.) Too hot an oven.
    (4.) Too much liquid.
14. Fat which has been used for deep-fat frying is clarified by the use of:—
    (1.) Bread cubes.
    (2.) Cooked potato.
    (3.) Raw potato.
    (4.) Raw egg-white and shell.

III. Fill in the blanks with one word which completes the statement.

1. A chicken is a bird.....than one year old.
2. Fish has.....connective tissue than meat.
3. Cold water, when added to gelatin, ...it.
4. One tablespoon of gelatin will stiffen..... .....of liquid.
5. Extractives add.....to meat.
6. Meat should be seared at.....degrees F.
7. The latest research advises baking muffins at.....degrees F.
8. Pastry should bake at.....degrees F.
9. One cup of rolled oats should be added to.....cups boiling water.
10. One cup of sour milk requires.....tsp. baking-soda to neutralize the acid.
11. In pasteurizing milk it should be heated to.....degrees F.
12. The sugar which we find in milk is called.....

PART II. (Time, 1½ hours.)

Total, **50** Marks.

[NOTE.—*Answer questions* I. *and* II. *and any other* two *questions.* Four *questions are considered a full paper.*]

3 I. (1.) Distinguish between sautéing and frying; boiling and broiling; roasting and pot-roasting.

8 (2.) What instructions would you give a housewife as regards the care of:—
    (*a.*) The sink.
    (*b.*) The ice-box.
    (*c.*) The silver.
    (*d.*) Garbage.

II. The following is a home dinner which is to be prepared on a gas-stove for a family of five:—

Round Steak	Baked Potatoes.
(Lower round).	Creamed Onions.
	Spinach.
Deep Apple Pie.	Whipped Cream.
Bread.	Butter.
	Coffee.

Value.

3 (1.) Give the order for preparing the various dishes for the above meal so that everything will be ready on time.

16 (2.) Give the steps in the preparation of each dish with standard proportions where possible.

4 (3.) By a drawing, show the main course placed on the table for serving, together with one individual cover.

2 (4.) State your procedure in clearing the table after the main course.

3 III. (1.) Name three ways of forming carbon dioxide gas.

4 (2.) Explain clearly the action of any one when used as a leavening agent in a flour mixture.

7 IV. In the process of the manufacturing of flour, explain the following:—

(1.) The first break.
(2.) The endosperm.
(3.) The bran.
(4.) The germ.
(5.) Bolting-cloth.
(6.) Graham flour.
(7.) Whole-wheat.

3 V. (1.) What are the three working surfaces in a kitchen?

2 (2.) What should be the relation of each of these areas to each other? Why?

2 (3.) How can you test the proper height for working surfaces?

VI. Discuss:—

3½ (1.) The cash-and-carry system *versus* the credit-and-delivery.
(2.) Instalment-buying *versus* the save-to-purchase plan.

3½ Give advantages and disadvantages.

NUTRITION AND PHYSIOLOGY.

PART I. (Time, 30 minutes.)

Value, **50** Marks.

I. Some of the following statements are true and some are false. Before those that are true place a plus (+) sign; before those that are false place a zero (0) sign.

DO NOT GUESS.

Example: (+) 1. Bread contains gluten.
(0) 2. January is the season for strawberries.

( ) 1. Sugar is a valuable source of calcium.
( ) 2. Plain cup-custard is rich in tissue-building foods.
( ) 3. Carbohydrates are the cheapest source of energy.
( ) 4. Starch is digested and absorbed more quickly than sugar.
( ) 5. Sweet foods sharpen the appetite.
( ) 6. Cellulose is not digested in the body.
( ) 7. The body burns its own tissues when the food requirement is not met.
( ) 8. Adequate food protects the body from excessive fatigue.
( ) 9. When a person is sleeping there is no expenditure of energy.
( ) 10. A high percentage of fat in a meal increases the rate of digestion.
( ) 11. Excessive emotion is harmful to the digestive processes.
( ) 12. Glucose is a sugar which is always in liquid form.

( ) 13. Beefsteak is the cheapest form of protein.
( ) 14. Scurvy is easily prevented by using fats.
( ) 15. Glycogen is stored carbohydrate.
( ) 16. Sex is more important than age in determining the food requirement.
( ) 17. Yellow root vegetables contain Vitamin A.
( ) 18. The oxidation of food takes place in the lungs.
( ) 19. One gram of protein when oxidized will yield 9 calories.
( ) 20. Sugar acts as roughage in the digestive tract.
( ) 21. Exercise has little to do with the calorie requirement.
( ) 22. The enzymes aid in peristalsis.
( ) 23. The amount of protein required varies according to the work of the individual.
( ) 24. Butter is a valuable source of Vitamin C.
( ) 25. The periosteum envelops the lungs.

II. Fill in the blanks below with the *one word* which completes the statement.

1. Starch is stored in the.....as.....
2. .....is a part of all body tissues.
3. The internal organs of the body are controlled in general by the..... nervous system.
4. Nerve fibres which carry impulses outward are called.....fibres.
5. That part of the brain which is the seat of sensations is called the.....
6. Carbon dioxide is excreted from the body by means of the.....
7. The upper cavities of the heart are called the.....
8. The muscular action in the intestines is called.....
9. In the heart there are.....valves.
10. The.....carries the bright red blood from the heart.
11. Disease germs in the body are killed by means of the.....
12. When the plasma gets outside the capillaries it is called.....
13. There are four kinds of teeth, (1)....., (2)....., (3)....., (4).....
14. Mumps is a swelling of the.....gland.
15. Bones of adults are more brittle than those of children because they contain a larger percentage of.....matter.
16. The largest bones in the body are.....in shape so as to give ....
17. The third inner coat of the eye is called the.....
18. The voice-box is called the.....
19. The average high-school girl has a daily food requirement of.....calories.
20. Astigmatism is a form of trouble in the.....
21. Olfactory nerves are connected with the sense of.....

PART II. (Time, 1½ hours.)

[NOTE.—*Answer questions* I. *and* IV. *and any* two *others.* Four *questions will be considered a full paper.*]

Value, **50** Marks.

16 I. A student has eaten a lunch consisting of macaroni and cheese, lettuce and pear salad, Graham muffins, baked apple, and a glass of milk.

(1.) Trace its passage through the digestive tract, noting the physical and chemical changes that take place before it is utilized by the body. Specify the digestive juices with their enzymes and their relation to the above changes.

Value.

10 II. (1.) What is the normal temperature of the body?

(2.) What part does the skin play in helping to maintain this temperature?

(3.) An anæmic child feels the cold very keenly. Explain the reason.

(4.) Explain the cause of a chill. What should be done for a person suffering from a severe chill?

10 III. (1.) Give an effective emergency treatment for any *three* of the following: A scald, a faint, a sprained ankle, choking, nose-bleed.

(2.) Discuss your method of preparing and applying (*a*) a linseed poultice; (*b*) a mustard plaster.

IV. Two girls in a family aged 15 and 17 years have both dietary problems. The first one is definitely overweight and wishes to reduce, and the other is as seriously underweight and must plan to gain.

6 (1.) Outline a day's menu for both girls with the least possible extra work for the mother.

4 (2.) Give in calories the amount of each special dish that each girl should eat.

4 (3.) Show how your menu has fulfilled the requirements of an adequate diet in each case.

3 V. (1.) On what basis does one judge the protein requirement of an individual? If one has a total food requirement of 2,500 C., how many should be protein?

4 (2.) Compare eggs and cereals as sources of protein, explaining which you think preferable and why.

3 (3.) When too much protein is eaten, what is the result?

5 VI. (1.) What dietary deficiency causes the following: Anæmia, diabetes, constipation, rickets, scurvy?

5 (2.) Make a list of foods (at least four) to be used in correcting the above conditions.

Matriculation Course, Home Economics (B).

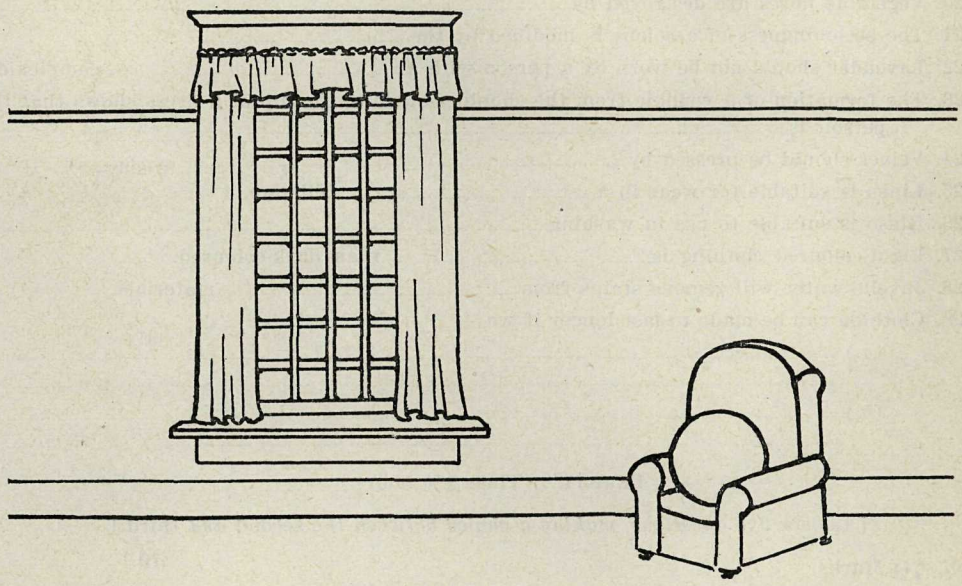
APPLIED ART. (Time, 2 hours.)

Value.

50 Drawings of the year to be placed in a folder and laid on your desk. These will be collected and marks awarded.

35 1. Make a design for an embroidered cushion, rectangular shape, 12″ x 18″. Scale of drawing to be 8″ to 1 ft. (that is 8″ x 12″). Run a simple border 1″ wide around this area and fill the remaining panel with a conventional design based on the subject "Spring Flowers." Show detail of stitchery to be used and colour one-quarter of the cushion.

15 2. Given—wall elevation of a bedroom facing north, with arm-chair, cushion, and window-curtains. Trace outline in pencil and fill in with suitable colour-harmony.



CLOTHING AND TEXTILES.

PART I. (Time, 30 minutes.)

Total, **30** Marks.

Complete the following statements by filling in the blanks with suitable words:—

1. The first step in removing the flax fibres from the flax stalks is called.....
2. The fibre showing joints or nodes in its structure is called.....
3. The value of.....wool is greater than that of.....wool.
4. Piece-dyed material is not generally as satisfactory as.....
5. A straight piece of material may be made to fit a square neck if you..... the corners.
6. Joins in a true bias should be on.....of the goods.
7. Spun silk is manufactured from.....silk.
8. The longest fibre is.....; the shortest is.....
9. In cutting printed material one must look carefully to make sure it has no..... and.....

10. If we wish to have horizontal lines give height we must place them.....
.....

11. The shoulder seam should be a little back of the top line of the shoulder if the person is..... .....

12. The basis of choice of colour in dress should be.....colouring.

13. Exposing the ears in hair-dressing makes a face appear.....

14. The oblique line in the contour of a hat is not suited to a person with.....
.....

15. Cotton before spinning is in the form of.....

16. .....is used in the manufacture of rayon.

17. ....cotton has the longest fibres.

18. The fibre with the least affinity for dye is.....

19. .....burns slowly and with an unsteady flame.

20. Vegetable fibres are destroyed by..... .....

21. The becomingness of a colour is modified by the.....

22. Lavender should not be worn by a person with a.....complexion.

23. The formation of a wrinkle from the shoulder-blade to the hip of a dress shows that the person is..... .....

24. Velvet should be pressed by..... .....

25. Linen is suitable for wear in a.....climate.

26. Rinso is suitable to use in washing..... .....

27. Light-coloured clothing is.....than dark-coloured.

28. Javelle water will remove stains from.....materials.

29. Clothing can be made to last longer if we:—

(*a.*) .....
.....

(*b.*) .....
.....

PART II. (Time, 1½ hours.)

[*Answer* five *questions, making a choice between the* second *and* third.]

Total, **70** Marks.

15 1. Show by written directions and illustration how to make a bound button-hole on a coat. Be sure to cover all the following points:—

(*a.*) Location of button-hole in relation to the front edge of coat.

(*b.*) Size of button-hole.

(*c.*) At what stage in the tailoring of the coat should the button-hole be made?

(*d.*) Construction of the button-hole.

10 2. Write a brief account of the history of textiles from earliest times, paying special attention to the inventions relating to the manufacture of textiles.

10 3. (*a.*) In the selection of fabrics, of what importance is a knowledge of the different kinds of weaves?

(*b.*) Classify the following as to weave: Sateen, Turkish Towelling, Gabardine, Linen Crash, Pillow Tubing, Gingham, Poplin, Linen Damask, Marquisette, Cheese-cloth, Cotton Crepe, Corduroy.

15 4. Explain *fully* how you would deal with each of the following:—

(*a.*) Correct a neck-line in a woollen dress which has become stretched in the making and is therefore too large for a collar of the correct size.

(*b.*) Press a flared skirt.

Value.

(*c.*) Prepare a skirt for commercial pleating when it is to be attached to the bodice at the hip-line, and is to have full-depth pleats.

(*d.*) Find the location of the shoulder-seam on a sleeve if it is not shown on the sleeve pattern.

(*e.*) Cut two sleeves from material with a right and a wrong side, when they must be cut separately.

15 5. Four of the most important characteristics of fibres used in the manufacture of textiles are: elasticity, length, hygienic quality, and affinity for dye. Apply each of these characteristics to the five common textiles and point out in particular what influence they have on the finished cloth.

15 6. (*a.*) Give three good reasons for keeping a budget.

(*b.*) What are the most important points controlling the cost of clothing for the girl living on her own salary?

(*c.*) What divisions would you make, and what percentage would you allow each division, in making a *complete budget* for a girl who has had a course in Home Economics in High School (both Foods and Clothing) and is now employed in an office at $75 a month and has no other source of income?

Third-year Course, Commercial.

ACCOUNTANCY PRACTICE. (Time, 3½ hours.)

[NOTE TO EXAMINER.—*Please provide each candidate with 3 sheets of 2-column journal paper and 2 sheets of standard ledger paper.*]

Value.

16 1. The following transactions occurred in the wholesale business of Davis and Johnson Co., Ltd. Make journal entries to record these transactions properly.

(*a.*) May 5. Shipped ten one-hundred pound sacks of sugar, invoiced at $10.50 per cwt., to Jones and Jones, Revelstoke, via C.N.R. Express C.O.D. plus charges for collection of ⅛%.

(*b.*) Made a donation to the Red Cross from stock, of goods valued at cost price $100.

(*c.*) A draft drawn on W. J. Jones for $310, which we had discounted, was returned unpaid. The bank allowed a rebate of 37 cents.

(*d.*) The Trust and Guarantee Co. sent a cheque for $230.68, in full settlement of our claim against Brown and White. The settlement is at the rate of 32 cents on the dollar. Make your entry so as to close out the account of Brown and White.

14 2. A, B, and C are equal partners in a wholesale business, with assets and liabilities as follows at December 31, 1929: Merchandise, $194,000; Accounts Receivable, $34,000; Bills Payable, $16,000; Real Estate Buildings, $70,000; Real Estate Land, $44,000; Accounts Payable, $18,000; Bills Receivable, $10,000; Mortgage Payable, $12,000; Store Fixtures and Furniture, $30,000; Office Furniture and Fixtures, $6,000; Cash, $18,000.

They have organized a corporation with a capital stock of $400,000 to take over the partnership business, the new company taking over the assets and assuming the liabilities. Each partner is to receive for the value of his interest in the partnership an equal value in the stock of the corporation at par and another $10,000 of the same for Good-will. The balance of the stock has been subscribed for. Make the entries to open the books of the corporation.

8 3. (*a.*) Harvey & Co. have kept their books by Single Entry, but wish you to open a Double Entry set for them. From their records you are able to prepare the following list of Assets and Liabilities. If all entries are to be put through the Journal and Ledger, make the opening Journal entries for them.

Assets.

Cash, on hand	$350.00
Merchandise as per Inventory	18,600.00
Bank of Toronto, on deposit	7,400.00
Plant, Inventory Value of Machinery	14,400.00
Bills Receivable, Notes on hand	13,600.00
Office Furniture, as per Inventory	1,000.00
Real Estate, valuation	14,400.00
R. Brown, personal account	272.00
R. J. Wills, personal account	174.00

Liabilities.

Mortgage Payable	5,600.00
Bills Payable, Notes outstanding	27,400.00
R. J. Walker & Co.	360.00
J. B. James & Co.	840.00

4 (*b.*) How would you ascertain the profit or loss made by Harvey & Co. for the current year?

Value.

12 4. Browne and Fitzpatrick were partners, Browne investing three-fifths of the Capital and Fitzpatrick two-fifths. How much did each partner invest, if at the end of the first year the books showed the following accounts, besides those of the two partners: Merchandise (Inventory), $9,400; Accounts Payable, $9,250; Real Estate (debit), $25,000; Cash, $3,750; Bills Payable, $7,120; Mortgage Payable, $16,000; Accounts Receivable, $5,680; Interest due others, $144; Bills Receivable, $4,800. Their net loss was $8,684. Show the partners' accounts at the end of the period.

5. From the following Trial Balance and supplementary data, prepare:—

8 (*a.*) Trading Statement.

14 (*b.*) Profit and Loss Statement.

16 (*c.*) Balance Sheet.

Dandby & Kendrick—Trial Balance as at December 31, 1929.

Debit Balances—	
Cash	$3,744.00
Accounts Receivable	45,890.00
Delivery Equipment	6,200.00
Furniture and Fixtures	10,780.00
Inventory January 1, 1929	14,120.00
Bills Receivable	15,352.00
Sales Returns	7,780.00
Purchases	288,489.20
Freight Inward	7,037.00
Warehouse Labour	2,004.00
Salesmen's Salaries	4,430.00
Advertising	1,744.00
Freight Outward	632.00
Office Salaries	5,238.00
Postage	164.00
Office Supplies	232.00
Legal Expenses	170.00
Office Heat and Light	424.00
Sales Discounts	4,612.00
Interest Paid	286.00
Telephone	34.00
Insurance	1,000.00
Rent	4,400.00
General Expense	148.00
Commissions on Sales	760.00
	$425,670.20
Credit Balances—	
Reserve for Bad Debts	$768.00
Reserve for Depreciation on Delivery Equipment	240.00
Accounts Payable	48,440.20
Bills Payable	17,000.00
Sales	316,670.00
Purchase Returns	5,428.00
Interest Earned	262.00
Purchase Discounts	6,082.00
J. R. Dandby (Capital)	10,780.00
G. L. Kendrick (Capital)	20,000.00
	$425,670.20

Value.

Supplementary Data: Inventory December 31, 1929, $26,520; Stationery on hand, $70; Postage on hand, $34; One-fourth of advertising to be applied to next year; warehouse labour of $260 due and unpaid; Interest accrued on Bills Receivable, $142; on Bills Payable, $94; Rent prepaid, $200; Reserve for Depreciations, 10% of Delivery Equipment; 10% of Furniture and Fixtures; Reserve for Bad Debts, 1% of Net Sales. Profits are divided, Dandby ⅓, Kendrick ⅔.

8 6. Write up in proper form the Sales Ledger Controlling Account from the following particulars. Show the balance at the end of the month.

June 1.	Balance	$21,740.00
June 30.	Sales on Credit	21,865.00
June 30.	Rebates allowed customers	610.00
June 30.	Cash received from customers	11,980.00
June 30.	Customers' Acceptances	8,760.00
June 30.	Interest on Notes not paid when due	26.00
June 30.	Drafts dishonoured	840.00
June 30.	Sales Discounts	184.00
June 30.	Purchases made from customer	36.00

ACCOUNTANCY THEORY. (Time, 2 hours.)

[NOTE TO EXAMINER.—*Please furnish each candidate with examination cap and 1 sheet of standard ledger paper.*]

1. A merchant who has been keeping a record of his business transactions in three ledgers (General, Sales, and Purchase) has been advised by the auditor to introduce Controlling Accounts in order that he may successfully divide the work of keeping the books.

5 (*a.*) Briefly explain how the introduction of Controlling Accounts will permit the successful division of the work.

9 (*b.*) Define: Subsidiary Ledger; Self-balancing Ledger; Adjustment Account.

15 2. Explain clearly how you would show the following on a Balance Sheet:—

(*a.*) Provision for doubtful accounts.

(*b.*) Office stationery on hand at closing.

(*c.*) Delivery equipment depreciation reserve.

(*d.*) Interest paid to us in advance.

(*e.*) Office Salaries due, unpaid, and not recorded in the books.

7 3. (*a.*) Name two ways in which a company differs from a partnership, and outline five advantages that a company has as compared with a partnership.

9 (*b.*) Outline clearly the difference between Authorized Capital Stock; Paid-up Capital Stock; and Subscribed Capital Stock.

3 4. (*a.*) What is meant by merchandise shipped on consignment?

3 (*b.*) What entry is made in the books of the consignor when goods are shipped on consignment?

4 (*c.*) What entry is made in the books of the consignee when goods are received on consignment? Why?

18 5. The B.C. Exporters (head office, Vancouver) have a branch at Victoria. Each office keeps a separate set of books. The following transactions occurred during May. Write up the Branch Account as it would appear in the head office books and bring the balance down.

Value.

May 1. Victoria commenced business with the following investments from Vancouver: Merchandise, $12,000; Cash, $2,000; Delivery Equipment, $4,000; Real Estate, $20,000.
May 4. Vancouver remitted Victoria, $1,000.
May 6. Vancouver paid Victoria Accounts, $1,300.
May 8. Victoria remitted Vancouver, $2,000.
May 12. Vancouver shipped Victoria merchandise which cost $1,200.
May 14. Victoria paid accounts for Vancouver, $600.
May 19. Victoria returned merchandise to Vancouver, $400.
May 31. End of company's financial year. Loss of Victoria branch for period of operation, as per Victoria's Profit and Loss Account, is $1,250.

15 6. Distinguish between: (*a*) Real Account and Nominal Account, (*b*) Proprietor's Capital Account and Proprietor's Current Account, (*c*) Deferred Charge and Accrued Liability, (*d*) Preferred Stock and Common Stock, (*e*) Prime Cost and Factory Cost.

12 7. A company operating under the trade-name of the Fernie Department Store decides that each of the departments must show a profit or be discontinued. Up until the present time the sales and purchases have not been classified, but in future the sales and purchases of the seven departments of the store are to be kept separate. Rule up a form for the Purchase Book, using the names of any seven departments you think that such a store might have.

ARITHMETIC, GENERAL. (Time, 2½ hours.)

[NOTE.—*The first* seven *questions and* two *of the* last three *constitute a full paper.*]

4 1. (*a.*) What are the English measurements approximately equivalent to the following metric units: metre; litre; stere; kilogram?

3 (*b.*) What are the approximate values in Canadian money, at present rates of exchange, of the following monetary units: (*a*) the French franc; (*b*) the German mark; (*c*) the American dollar?

5 2. (*a.*) A person spends one-third of his income, saves one-fourth, and pays away five per cent. of the whole income as interest at eight per cent. on debts previously incurred, and then has $1,100 remaining. What was the amount of his debts?

4 (*b.*) What is the property of a person whose income is $11,400, when one-twelfth of it is invested at 2%; one-half at 3%; one-third at 4½%; and the remainder pays him no dividend?

12 3. A reservoir measures 24′ 9″ long, 9′ 4″ wide, and 7′ 6″ deep. It is desired to fill the reservoir to within 4″ of the top. This is done by means of a pipe through which water runs at the rate of 12 gallons a second. How long would it take to raise the water to the necessary level if the reservoir already contains water to the depth of 1′ 8″, assuming that there are 277.2 cubic inches to a gallon?

12 4. A railway company decides to construct a fence along both sides of its right-of-way from one station to another, the stations being 4½ miles apart. Posts are set 8′ apart. A board 4″ wide and 1″ thick is placed along the bottom of the fence, while along the tops of the posts runs a scantling 2″ by 4″. There are six strands of wire. If the posts cost 27½c. each, lumber costs $24 per M., and wire costs 8c. a pound, find the cost of the materials required to build the fence. (Allow 16½′ of wire to the pound.)

Value.

12 5. A man purchases a house for $6,000. He pays $1,200 in cash, and agrees to pay the remainder in four equal annual payments of principal and interest. If money is worth 7% per annum, find the amount of each annual payment.

12 6. On February 1 a speculator ordered his broker to buy for his account on a margin of $20 a share 120 shares of Noranda mining stock which was listed at $39.50. On March 18 he gave a selling order when the stock was quoted at $41.25. If the broker charged ¼% both for buying and for selling, as well as 7% for the use of the money he advanced in making the purchase, find the speculator's loss or gain on the transaction.

12 7. A merchant buys goods to the value of $1,200, subject to a discount of 2% if paid in ten days. He has only $811 in cash, but the bank agrees to discount his 30-day note at 7% drawn for such an amount that the proceeds will just make up the difference between the net amount of the invoice and the cash on hand. He accepts the banker's offer. Find:—

(*a.*) The face of the note;

(*b.*) The merchant's net gain by taking advantage of this method of paying the invoice.

12 8. A, B, and C form a trading company for one year, investing $3,000, $2,000, and $1,000 respectively, and agreeing to share net gains or losses in proportion to their average investments. A is appointed manager at $60 a month, and B secretary at $30 a month, but it is agreed that these salaries are to be reduced as the capital invested is reduced. After six months A withdraws and turns over the manager-ship to C, while two months later B withdraws and C becomes secretary as well as manager. How would the year's profits of $1,150 be divided?

12 9. A merchant in London sends a prepaid shipment of 5,000 yards of cloth to his agent in Montreal, invoiced at 6s. a yard. The cloth is subject to a duty of 20%, the value of £1 being $4.85 on the day the goods were cleared. The cloth is sold at $2.60 a yard on a commission of 3%. After deducting the duty, his commission, and drayage charges of $31, the agent is instructed to invest the net proceeds in apples at $6 a barrel, his buying commission also being at the rate of 3%. How many barrels was he able to buy?

12 10. A teacher requests a senior typing student to prepare a graph showing the results of his six months' instruction. The student finds that the total number of words written on his various tests was as follows: 484, 512, 542, 588, 640, and 662, while he has made 8, 7, 10, 6, 7, and 4 errors, respectively, on the tests. Assuming that each test was of ten minutes' duration, and that a penalty of ten words was deducted for each error, prepare a simple graph showing:—

(*a.*) The gross rate per minute on each test;

(*b.*) The net rate per minute on each test;

(*c.*) The "wastage" in speed due to the student's inaccuracy.

100

ARITHMETIC, RAPID CALCULATION. (Time, 30 minutes.)

[NOTE.—*Candidates are to be supplied with working-paper, but answers must be handed in on the actual examination paper. These answers are to be collected at the end of 30 minutes, when the second paper will be distributed.*]

25 1. The following figures show the sales in each department of a store throughout the week. Add vertically and horizontally, showing the gross sales for the week in all departments.

Value.

	A.	B.	C.	D.	E.	
Monday	$1218.60	$2137.45	$1745.43	$1816.91	$1324.56	.....
Tuesday	1097.26	1895.34	1645.41	1765.23	934.78	.....
Wednesday ..	897.35	1976.35	1475.38	1583.45	1356.34	.....
Thursday	923.67	1754.76	1647.92	1634.67	1542.09	.....
Friday	1176.12	1578.13	2109.34	1567.12	1437.34	.....
Saturday	1452.56	1874.39	2398.67	1890.65	1705.54	.....

Ans.

7 2. Find the number from which if 13675 be taken the remainder will be 45209 less 27645.

Ans.....

7 3. (*a.*) Find the H.C.F. of 444, 592, and 703. Ans.....

7 (*b.*) Find the L.C.M. of 15, 26, 39, 65, 180. Ans.....

7 4. (*a.*) Reduce to its lowest terms: $\frac{2813}{3783}$ Ans.....

7 (*b.*) Find the square root of 622521. Ans.....

10 5. Simplify: $\frac{(3\frac{1}{3} - 2\frac{1}{2}) \div \frac{5}{6} \text{ of } \frac{3}{8}}{2\frac{2}{3} \div (\frac{1}{2} + \frac{1}{4})}$ Ans.....

8 6. If $\frac{3}{7}$ of an estate be worth $1,500, what is the value of $\frac{4}{5}$ of the same estate?

Ans.....

15 7. Find the value of the following shipment:—

(*a.*) 12600 lb. of wheat at 90c. a bushel .....

(*b.*) 32000 lb. of potatoes at 72c. a bushel .....

(*c.*) 46220 lb. of corn at 69c. a bushel .....

(*d.*) 56180 lb. of barley at 56c. a bushel .....

Total .....

Ans.

7 8. What single discount is equal to a series of 20%, 10%, and 6¼%?

100 Ans.....

BUSINESS CORRESPONDENCE. (Time, 2 hours.)

5 1. Give the meaning of the following abbreviations: a/s; et al.; memo.; shipt.; l.c.l.; c.f.i.; P.Q.; D.L.S.; M.E.; ital.

5 Give the meaning of the following terms and use them correctly in sentences: annuity, carte blanche, demurrage, hypothecate, moratorium, locum tenens, syndicate, subpœna, voucher, turnover.

5 Rewrite these "hackneyed" expressions: "according to our records"; "contents carefully noted"; "enclosed herewith"; "in reply wish to state that"; "we take pleasure in sending you herewith."

6 2. Why is a knowledge of filing necessary in a business office?

12 Discuss each of the following systems, showing their relative merits: Shannon, Vertical, Alphabetical, Numerical, Direct Name.

Value.

4 3. Of what value are "Form" letters?

12 Write a "Form" letter for each of the following: (1.) Appreciation for a cheque in payment of goods. (2.) A notice to a customer that goods ordered are not in stock.

4 4. Why do some customers fail to pay promptly?

4 How is money collected from "slow-paying" customers?

12 W. M. Cutter & Sons, Nelson, B.C., were sold a bill of groceries by the Western Grocery Co., New Westminster, B.C. The sellers have sent the buyers a statement and three letters calling attention to the fact that the bill has not been paid. After the third letter the buyers state that they have not received a bill, and ask for an itemized statement. A fourth letter is written to accompany the itemized statement. Apply the principles of collection letters and write the four letters.

10 5. A business man has to give a series of short talks to a group of business men, each talk to be not longer than ten minutes. You are his stenographer and he asks you to make brief outlines from his notes to be used as references. Make a short plan for each of the talks on the following subjects:—

(1.) The tone of a business letter.

(2.) Getting attention and arousing interest.

(3.) Persuading a prospect to buy.

(4.) News value in letters

(5.) Giving personality to letters.

4 6. Into what classes do claims fall in adjustment letters?

5 How would you deal with each class?

10 The following is a very firm, courteous, and definite example of a claim letter. Write just as strong a letter in reply.

Gentlemen:

We regret exceedingly that we are obliged to ask you to cancel the balance of our order No. 155 for 28, 34, and 75 Men's Leather Gloves and Gauntlets.

We have just received the first shipment and the goods are not at all satisfactory. The gloves which you sent us are not the class we care to handle. They are not the correct merchandise for our trade.

We are very sorry we are obliged to do this, but the goods do not come up to the sample or to our expectations.

Very truly yours,

100

COMMERCIAL GEOGRAPHY. (Time, 2 hours.)

5 1. Show how coal and iron have been responsible for the industrial development of the Temperate Regions?

5 What has retarded industrial and agricultural development in the interior of Asia?

12 2. Compare the provinces of Ontario and British Columbia in regard to the following: Agriculture; Fishing; and Lumbering.

14 3. Name the six most important mineral products of British Columbia. Draw a sketch-map of British Columbia and indicate their regions of production.

12 4. Canada has made great strides in commercial aviation. Describe these advances. What are the commercial possibilities for aviation in British Columbia?

10 5. "Vancouver has everything in her favour for development as the greatest port on the West Coast of North America. Discuss this idea in detail.

Value.

12 6. Name at least two important areas of production of sugar, cotton, asbestos, coffee, rubber, copper.
Trace the main trade route from the chief shipping port of these products to any port in British Columbia.

10 7. Write short notes on British Columbia and its relation to the Panama Canal, the Great Circle, the Peace River District, Brazil, the Canadian Transcontinental Railways.

12 8. What are the advantages of water-power over coal and petroleum? Why is the St. Lawrence Waterways Scheme important in this respect? What development has taken place in water-power in British Columbia?

8 9. At Trail, B.C., a mining and smelting company is producing a superphosphate fertilizer. Show the importance of this to the Prairie Provinces.

100

COMMERCIAL LAW. (Time, 2 hours.)

11 1. (*a.*) Define consideration.
(*b.*) State whether or not the following promises would be sufficient to support a contract:—

(1.) Mr. and Mrs. Brown lodge, feed, and arrange for medical attention to a boy called John Smith, who has just arrived from a long sea voyage. After the boy has recovered, and when he is about to leave the Brown home, Smith and his father *promise* to give Mr. and Mrs. Brown $150.

(2.) E. White receives a subpœna from a Court requiring his presence as a witness at a certain trial. C. Black is very desirous that White be a witness at his trial and *promises* to pay him $25 if he will attend.

(3.) A rich man called Henry Samuel Wilson *promises* the parents of an infant that he will give the infant $5,000 if they will call him Henry Samuel. They do so.

6 2. Explain what you mean by a negotiable instrument. State four kinds of negotiable instruments.

12 3. A man has a fairly large general store and is conducting it as a private business. Give four arguments which you would use to persuade him that it would be to his advantage to form a Limited Liability Company.

8 4. A buys a machine from B for $1,000 and pays $200 cash, promising to pay the remaining $800 in six months. At the time the bargain is entered into C guarantees in writing to pay the $800 in case A should default. What liabilities has C assumed? What are his rights, if any, under this contract?

10 5. What is a chattel mortgage? Where must it be registered? When? What must accompany the registration? What is the legal position of a man who has a chattel mortgage and fails to register it?

10 6. Explain the meaning of the following terms: "Power of Attorney"; Personal Covenant in a mortgage"; "Innocent Holder for Value"; "Overholding Tenant."

9 7. State and explain clearly three ways in which an agency may be created. Give examples if necessary.

10 8. Explain the difference between a Savings Account and a Current Account.

Value.

12 9. State one possible advantage and three disadvantages of a partnership.

12 10. Who may take advantage of the Mechanics' Lien Act? When and how must they take advantage of the rights accorded them under the Act?

SHORTHAND DICTATION. (Time, 3 hours.)

[TO THE PRESIDING EXAMINER.—Three hours *are to be allowed the candidates from the time that the dictation is finished. Provide candidates with plain white letter paper, or books, for transcripts; and with foolscap, or stenographers' note-books, for taking notes. Notes may be taken with either pen or pencil. Transcripts may be either pen-written or typewritten. The teacher of the candidates may dictate the selections, and may be given the material fifteen minutes before dictating, so that he may prepare the timing of his dictation.* IMPORTANT.—*The teacher's dictation must be closely checked for time; and he must be* positively stopped *at the end of the fifth minute on each selection.*]

[TO THE DICTATOR.—*The dictation must be at a uniform rate of speed with close attention to the quarter-minute marks and with watch in hand. The material must not be read, nor any word in it mentioned, prior to the actual dictation. Allow three minutes after each section, in order that candidates may review their notes and recover from the tension of a five-minutes' take.*]

[TO THE CANDIDATES.—*Candidates will hand in three transcripts—A, B, and C. Each transcript should begin on a separate page. Shorthand notes* must *be handed in. Examination number must be placed on each separate sheet.*]

"A."

(Eighty words per minute. Syllabic intensity not exceeding 1.5.)

The information of the agencies is given out in three forms: (1) Daily sheets containing mention of all new (¼) incorporations, bankruptcies, failures, and new business establishments; (2) a quarterly register or directory (½) of the name, capital rating, and credit rating of every individual and firm in the United States and (¾) Canada occupied in mercantile, financial, or industrial calling; and (3) special confidential reports furnished (1) upon request to subscribers, concerning any specific business house. Every precaution is taken (¼) against the use of these reports for purposes not legitimately mercantile. They are carefully detailed (½) summaries of the character, history, ability of the individual in question; his wealth and debts, social (¾) standing and habits; and a general expert opinion as to the extent to which his credit is good and the proper (2) manner of approaching him. The report is intended to put together significant facts, from which the experienced (¼) credit man can build up his own impression.

The general directory contains the names of all firms doing any (½) important business in the United States, arranged by States and cities, with an assigned rating for each firm. One (¾) agency publishes the names and addresses, etc., of 1,300,000 firms and corporations. These are (3) frequently changed by additions, obliterations, and other altered ratings, but every effort is made to keep them up (¼) to date.

Naturally, this material is impartial, and it is now largely prepared with the active assistance of (½) the houses which are being rated. Houses wish to establish an accurate rating upon going into business, (¾) especially where their dealings are in distant markets. In this way the commercial world is dependent upon the responsible agency. (4)

The two ratings given in the quarterly rate book are the capital rating—an estimate of the amount of the (¼) capital invested; and the credit rating—an estimate of the degree of confidence which can safely be granted (½) to the given firm or individual. These ratings are the final judgment of the agency's experts, and that they are usually (¾) sound may be surmised from the confidence placed in them by the entire business world. The capital rating is the opinion (5) of the commercial value of the assets.

"B."

(One hundred words per minute.)

The protection of forests from fire is undoubtedly the most urgent and most important part of the work of the different agencies administering forest lands (¼) in Canada. In the case of the Dominion Government, this duty falls chiefly on the Forest Service of the Department of the Interior for all Dominion (½) Crown timber lands, whether within forest reserves or not. Certain officers of the various forest authorities are appointed ex-officio officers of the Board of (¾) Railway Commissioners and are responsible for fire protection along railway lines. These guards co-operate with the railway fire rangers employed by the various (1) railway companies, the compulsory patrol of all lines throughout the country being a Dominion law. Other Dominion legislation regulates the use of fire for clearing (¼) and other legitimate purposes and provides for closed seasons during dangerous periods.

Each of the Provincial Governments maintains a fire protection organization which co-operates with (½) owners and licensees for the protection of all timbered areas, the cost being distributed or covered by special taxes on timber lands.

An interesting development (¾) in this connection in the province of Quebec is the organization of a number of co-operative protective associations among lessees of timber limits. (2) These associations have their own staffs, which co-operate with those of the Board of Railway Commissioners and the Provincial Government. This latter contributes in the (¼) way of money grants and also pays for the protection of vacant Crown lands lying within the areas of the association's activities.

The most important (½) single development in forest fire protection in late years has been the use of aircraft for the detection and suppression of incipient forest fires, (¾) constituting a measure of prevention rather than a cure. Where lakes are numerous flying boats can be used both for detection and for the transportation (3) of fire-fighters and their equipment to fires in remote areas.

Where safe landing places are few, land machines are used for the detection and (¼) inspection of fires only. The aircraft are equipped with wireless and can report the exact location of a fire as soon as it has been detected. (½) These aircraft can be used incidentally for exploring remote areas and mapping them by means of aerial photography.

As a general rule aircraft are used (¾) in the more remote districts, while lookout towers connected by telephone lines and equipped with wireless are established in the more settled and more (4) travelled forest areas. While these agencies have to a large extent supplanted the old canoe, horseback and foot patrol for detection of fires, a large (¼) ground staff with its equipment stored at strategic points will always be necessary for the fighting of larger fires and the maintenance of systems of communication (½) and transportation and of fire lanes and fire guards in the forest.

The most important improvement in forest fire fighting equipment has been (¾) the portable gasoline fire pump. These pumps, which weigh a little over a hundred pounds, can deliver efficient water pressure three or four thousand feet. (5)

"C."

(One hundred and twenty words per minute.)

If I can appreciate my honourable friend's position in this matter, he is very desirous of protecting both the investors and the consumers in a reasonable and fair way. (¼) But I cannot quite agree with his view as to the amount of power likely to be used in Canada. I find that he bases his estimate largely on (½) that made last July by the power commission.

That commission estimated that some 40,000 horse-power would be adequate for Canadian consumption. But one of the members of the (¾) Ontario commission has told us to-day that 120,000 horse-power has been applied for in Ontario, and that, to a very large extent, that power would (1) be derived from Niagara Falls.

How is the minister going to ascertain which estimate is correct? Yet that is an important matter to determine before the government grants any licences. (¼)

Suppose a company invests several millions in developing power at Niagara Falls with the intention of shipping the surplus to the United States. If that company has the assurance (½) of being able to ship 100,000 horse-power to the United States during ten years, it

knows what it is doing, and it builds its lines accordingly. (¾) Its customers likewise know what they are going to receive, and they know further that at the end of that period the probability is that this surplus supplied to them (2) will be required by the Canadian consumers and they will be no longer able to get it.

But if the right to ship power to the United States may be (¼) taken from that company at any moment, the situation is altogether different.

It seems to me that it is of paramount importance that a definite period should be fixed within (½) which the right to export could be exercised, and that time should be sufficiently long to enable the company to recoup itself for the cost of its transmission lines to (¾) the United States and the shipment of that power.

That is also of importance from the point of view of the purchaser. Suppose there be no period fixed and the (3) company offers to sell to American manufacturers. The first question the purchasers will ask will be: For how long a period can you supply us with this power? And the (¼) inability to give such a guarantee may prevent the company from doing any business on any kind of a favourable basis.

If these licences may be cancelled at any moment (½) at the will of a minister, then the company cannot fail to be at a very serious disadvantage. Governments change and so do ministers, and the minister of to-morrow may (¾) come to the conclusion that all the power developed is required in Canada, although his predecessor may have held quite a different opinion.

If I had a power plant, (4) I would much rather have the right to export a limited amount of power within a fixed period than the right to export a larger amount and be subject to (¼) the possibility of having my licence revoked at any moment. Therefore, I think that before finally deciding on an important clause of this kind, we should consider it from every point (½) of view, and with the greatest possible care.

Suppose, for instance, a man has invested his money in a power plant and then offers to sell to an American consumer. (¾) The American consumer refuses to purchase unless the other will contract to give him his supply during a certain number of years. What, under such circumstances, can the minister do? (5).

STENOGRAPHIC PRACTICE.

(Time-limit for transcription, 1 hour.)

(Eighty words a minute. Syllabic intensity, 1.5.)

Letter 1.

Mr. James Wilson,
Nanaimo, B.C.

Dear Sir:

At your request we are mailing you to-day our latest catalogue of (¼) "Wearever" Aluminium. The special articles you mention will be found listed on pages 14, 20, and 35. (½) We shall appreciate your order for any of these.

Very truly yours,

Letter 2.

Bates Furniture Co.,
217 Eighth Avenue West,
Calgary, Alberta.

Gentlemen:

We are surprised to have your (¼) complaint about lot No. 279 Mahogany Veneer Dining-room Suite, your order No. 643.

There is always, (½) of course, a certain possibility of veneer chipping, and for that reason we take extra precautions in (¾) packing such merchandise in special crates.

If you will return the damaged pieces to us, we will examine them for (1) blemishes which might have caused the chipping.

Yours sincerely,

Letter 3.

Secretary,
Chamber of Commerce,
Vancouver, B.C.

Dear Sir:

We should appreciate it if you would put us in touch with (¼) some firm in your city that is financially responsible, progressive, and generally a live-wire organization, (½) to take up the sale and distribution of the Ajax Carburettor in your city and surrounding towns, preferably (¾) a battery or electric service station, or a good, live automobile accessory dealer.

Preparatory (1) to putting on a national advertising campaign, it is necessary for us to obtain a desirable (¼) and permanent connection for the distribution of our product.

We shall appreciate very much your courtesy (½) in the matter.

Yours very truly,

Letter 4.

Messrs. David Finley & Son,
Maple Grove Avenue,
Hamilton, Ontario.

Gentlemen:

In times like these, when the country (¼) is struggling to do a large amount of business on a limited supply of capital, it is important from the (½) standpoints of both buyer and seller to keep credit from being frozen up in nonliquid book accounts.

The trade acceptance (¾) puts such accounts into liquid form. For this reason banks, the foremost business organizations, and progressive firms (1) in general, favour their extended use.

Enclosed is a trade acceptance covering your invoice of November 17. (¼) With the acceptance is a statement of some reasons why it is a good thing to use this method of settling accounts. (½)

All that is necessary is to write across the face of the acceptance the date, your name, and the name of the bank (¾) where the acceptance is to be paid on the due date, and return it to us.

Will you be good enough to co-operate (2) with us in easing the general pressure on credit by adopting the acceptance method?

Yours very truly (¼)

Letter 5.

President of the Privy Council,
Ottawa, Canada.

Sir:

I notice that the criticism has been passed that (¼) considerable attention has been devoted to disputes between railway companies, rather than to matters (½) affecting the public interest.

These disputes, however, generally relate to matters which are necessary (¾) to be determined in order to facilitate the construction of new lines, or to matters which affect the safety (1) of the public, and in both these classes of cases it is important, in the public interest, that the disputes should (¼) be settled without too much delay.

The board has also initiated proceedings for the consideration of several (½) subjects of an important nature upon which it expects in the near future to make such orders or regulations (¾) as may seem to be within the powers of the board, and to be needed in the public interest; and it may be obliged (2) to ask for the interference of parliament either by direct legislation or by adding to the powers of (¼) the board.

We have also asked the Minister of Justice to give us legal assistance for the purpose of investigating (½) the positions of the telephone companies and the express companies, over which we have been given jurisdiction. (¾)

I have the honour to be, Sir,

Your obedient servant,

Chief Commissioner.

TYPEWRITING.

[TO THE PRESIDING EXAMINER.—*This examination shall be conducted in accordance with the rules for International Typewriting Contests. Part A shall be double-spaced. Twenty minutes will be allowed for typewriting this part and any student completing the section before the end of that time will begin again at the first. At the expiration of twenty minutes the speed work, Part A, shall be placed in the envelope provided for the same. An interval may be allowed for preparing the typewriter for the Tabulation Work, Part B. Twenty minutes shall be allowed for the completion of this part.*]

Part A.

Value.

75 The hand loom weaver was greatly attached to his calling and stuck to it when work was very intermittent and badly paid: but soon after the Commission had reported, it became obvious that he was engaged in a useless struggle, and that power weaving must win the day. As it came more and more into use the transformation of the clothing trade became complete. It ceased to be a great industry which gave employment for great varieties of highly specialized skill, and was transformed throughout into a series of processes of production by machinery.

During the whole course of the industrial revolution there was a decided feeling among many of the labourers that machinery was their enemy, diminishing their opportunities of employment and bringing about a reduction in their wages. This feeling found expression in many ways; sometimes in such riots as those in which the Yorkshire shearing frames were destroyed, and sometimes in proposals to impose legislative restrictions on the use of machines, so as to bring them to a level with hand work, and prevent them from doing the work more quickly or more cheaply than it could be done by hand. This latter suggestion rested on the old fallacy that employment is a limited quantity, and that efficiency of every kind is an evil, since it leaves less work to be done, and therefore less scope for employment at the old work on the old terms.

Under ordinary conditions this is a quite mistaken and, in any case, it would be a narrow-minded policy to pursue. Whatever the interest of a particular trade may be, the interest of the general public is best secured by efficiency. When goods are made more quickly and more cheaply wants are supplied on easier terms. These are benefits which accrue to consumers generally, and in case of articles of common consumption like clothing the working classes, collectively and individually, gain by increased efficiency and greater cheapness of production.

But this gain is sometimes so very slight and distant, that it is absurd to point it out as a consolation to a man who loses employment because his work is done better and more cheaply by a machine.

At the same time the rates of pay for weaving were miserably low. This may, conceivably, have been indirectly due to the possibility of having recourse to power weaving, but it was also a reason why the new invention was introduced so slowly. When wages were very low and the expense of production by hand was small, it was not worth while to run the risk of purchasing and setting up expensive machinery. It was not advantageous to do this unless the margin of probable profit was considerable. There was reason to doubt whether power weaving would be generally introduced after all. It did not seem likely to be less expensive than poorly paid hand labour for low-class goods, and moreover it had not been so far perfected that it could do the high-class work of the best weavers.

The great advantage of machine production in the eyes of the employers was similar to that which led them to prefer steam to water power. For all trade purposes it was desirable to have the organization of business under control. Water power could not be counted upon, and the hand loom weavers could not always be trusted to work regularly. They could not be depended on to finish a job, so that orders could not be executed for certain by a given day. With power weaving the whole was under the master's eye; he knew both where he stood and what he could undertake. Besides this the difficulties, which arose from time to time from the

Value.

embezzlement of materials, were far less likely to occur in connection with power weaving carried on under supervision in a factory.

Some of these advantages could be secured by a system which had been adopted in the woollen trade in Scotland, and which was beginning to come into vogue in the cotton trade also, though more slowly. The masters erected sheds in which looms were placed, and the weavers came and executed their work by hand loom but under supervision. Those who worked in this way got much higher wages than the men who preferred the greater freedom of working at home: but after all, such hand loom sheds were only a transitional form. Weaving organized in this fashion had its advantages, and when thus managed the application of power was particularly easy, especially if it was already employed on the same premises in connection with spinning. The gain to the community at large may be very great and may be undoubted, but there is serious loss to the individual who is no longer required to do the only thing he can do thoroughly well. Despite its benefits, the introduction of machinery has meant the displacement of workers possessing special skill as spinners or weavers; and a mechanical invention, which renders their special attainments useless and valueless, causes them irreparable loss. It seems hard to weigh an infinitesimal gain to a large number of consumers, against the ruin of a skilled artisan whose whole employment is taken away from him by the introduction of a machine which has rendered him useless.

(1,039 five-stroke words.)

Part B.

25 Tabulate the following (*making one carbon copy*) :—

Investment Table.

Showing the amount of $1 invested annually at seven different rates.

Yrs.	1%	1½%	2%	2½%	3%	3½%	4%
1	1.010	1.015	1.020	1.025	1.030	1.035	1.040
2	1.020	1.030	1.040	1.050	1.060	1.070	1.080
3	1.030	1.045	1.061	1.076	1.092	1.108	1.124
4	1.040	1.061	1.082	1.103	1.125	1.147	1.169
5	1.051	1.077	1.104	1.131	1.159	1.187	1.216
6	1.061	1.093	1.121	1.159	1.194	1.229	1.265
7	1.072	1.109	1.148	1.188	1.229	1.272	1.315
8	1.082	1.126	1.171	1.218	1.266	1.316	1.368
9	1.093	1.143	1.195	1.248	1.304	1.362	1.423
10	1.104	1.160	1.218	1.280	1.343	1.410	1.480
11	1.115	1.177	1.243	1.312	1.384	1.459	1.539
12	1.126	1.195	1.268	1.344	1.425	1.511	1.601
13	1.138	1.213	1.294	1.378	1.468	1.563	1.665
14	1.149	1.231	1.319	1.412	1.512	1.618	1.731
15	1.160	1,250	1.345	1.448	1.557	1.675	1.800

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