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SECONDARY EDUCATION (SCOTLAND).

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LEAVING CERTIFICATE EXAMINATION  
(INCLUDING DAY SCHOOL CERTIFICATE (HIGHER)  
GENERAL PAPER).

EXAMINATION PAPERS 1927.



LONDON :

PUBLISHED BY HIS MAJESTY'S STATIONERY OFFICE.

To be purchased directly from H.M. STATIONERY OFFICE at the following addresses :  
Adastral House, Kingsway, London, W.C.2; 120, George Street, Edinburgh;  
York Street, Manchester; 1, St. Andrew's Crescent, Cardiff;  
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1927.

Price 1s. 9d. Net.

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1927.

## PUBLICATIONS OF THE DEPARTMENT.

The following is a List of some of the more important Official Publications of the Department. They cannot be purchased from this Office, but may be obtained, either directly or through any Bookseller, from H.M. STATIONERY OFFICE (Scottish Branch), 120, George Street, Edinburgh.

- Education Authorities (Scotland) Grant Regulations, dated 15th June 1926. S.R. & O., 1926, No. 890, S. 34. Price 2*d.*; post free, 2½*d.*
- Education Authorities (Scotland) Grant Regulations, dated 27th May, 1925. S.R. & O., 1925, No. 608, S. 50. Price 2*d.*; post free, 2½*d.*
- Education Authorities (Scotland) Grant Regulations, dated 29th April, 1924. S.R. & O., 1924, No. 641, S. 49. Price 2*d.*; post free, 2½*d.*
- Education (Scotland) Supplementary Grant Regulations, dated 11th November, 1926. S.R. & O., 1927, No. 197, S. 11. Price 1*d.*; post free, 1½*d.*
- Education (Scotland) Vagrant Children Grant Regulations, dated 6th April, 1927. S.R. & O., 1927, No. 420, S. 22. Price 1*d.*; post free, 1½*d.*
- Central Institutions (Scotland) Grant Regulations, dated 3rd July, 1923. S.R. & O., 1923, No. 927, S. 57. Price 1*d.*; post free, 1½*d.*
- Code of Regulations for Day Schools in Scotland, dated 6th July, 1923. S.R. & O., 1923, No. 928, S. 58. Price 4*d.*; post free, 4½*d.*
- Secondary Schools (Scotland) Regulations, dated 6th July, 1923. S.R. & O., 1923, No. 929, S. 59. Price 2*d.*; post free, 2½*d.*
- Education (Scotland) Miscellaneous Grants Regulations, dated 31st July, 1925. S.R. & O., 1925, No. 882, S. 62. Price 2*d.*; post free, 2½*d.*
- Education (Scotland) Act, 1897, Amendment Order, dated 6th July, 1923. S.R. & O., 1924, No. 331, S. 25. Price 1*d.*; post free, 1½*d.*
- Code of Regulations for Continuation Classes, in Scotland, 1926. S.R. & O., 1925, No. 1366, S. 88. Price 5*d.*; post free, 5½*d.*
- Regulations for the Preliminary Education, Training and Certification of Teachers for various grades of Schools, 1924. S.R. & O., 1924, No. 791, S. 61. Price 8*d.*; post free, 8½*d.*
- Superannuation Scheme for Teachers, 1919. S.R. & O., 1919, No. 1105. Price 1*d.*; post free, 1½*d.*
- Superannuation Scheme for Teachers, 1919—Amendment of, 1922. S.R. & O., 1922, No. 466, S. 21. Price 1*d.*; post free, 1½*d.*
- Superannuation Scheme for Teachers, 1919—Amendment of, 1923. S.R. & O., 1923, No. 404, S. 32. Price 1*d.*; post free, 1½*d.*
- Superannuation Scheme for Teachers, 1919—Amendment of, 1925. S.R. & O., 1925, No. 441, S. 45. Price 1*d.*; post free, 1½*d.*
- Superannuation Scheme for Teachers (Scotland) 1926. S.R. & O., 1926, No. 363, S. 13. Price 3*d.*; post free, 3½*d.*
- Teachers' Superannuation Rules (Scotland), 1926. S.R. & O., 1926, No. 356, S. 9. Price 3*d.*; by post, 3½*d.*
- Regulations as to Reformatory and Industrial Schools. [Cmd. 1159.] Price 1*d.*; post free, 1½*d.*
- Regulations under Sections 3 (2) and 78 of the Mental Deficiency and Lunacy (Scotland) Act, 1913. [Cd. 7420.] Price ½*d.*; post free, 1*d.*
- Circular 459 (Refers to Mental Deficiency and Lunacy (Scotland) Act, 1913). Price 1*d.*; post free, 1½*d.*
- Recommendations to be followed in the Planning and Fitting Up of Schools, 1925. Price 6*d.*; post free, 6½*d.*

A Further List of Publications appears on Page 3 of Cover.

SECONDARY EDUCATION (SCOTLAND).

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# LEAVING CERTIFICATE EXAMINATION

(INCLUDING DAY SCHOOL CERTIFICATE (HIGHER)  
GENERAL PAPER).

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EXAMINATION PAPERS 1927.



LONDON:

PUBLISHED BY HIS MAJESTY'S STATIONERY OFFICE.

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LEAVING CERTIFICATE EXAMINATION  
(including Day School Certificate (Higher)  
General Paper).

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The Leaving Certificate Examination (including the General Paper set in connection with the award of the Day School Certificate (Higher)) is held annually by the Scottish Education Department. In 1927 it commenced on Monday, 21st March.

☐ Candidates must be pupils of a School at which, or in connection with which, the Examination is held, and have been in regular attendance at the School from January to the date of the Examination.

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EXAMINATION PAPERS.

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DAY SCHOOL CERTIFICATE  
(HIGHER), 1927

GENERAL PAPER

Monday, 21st March—10 A.M. to 12 NOON

*The value attached to each question is shown in brackets after the question.*

**N.B.—Write legibly and neatly. Marks will be deducted for bad writing.**

1. Write a short composition, to fill about a page of your book, on any *one* of the following:—

- (a) A Snowstorm in Spring.
- (b) The Death of Samson.
- (c) A Humorous Character in Shakespeare, or in Scott, or in Dickens.
- (d) Description of a Sewing Machine, or of a Motor Bicycle, or of a Reaping Machine. (30)

2. Read the following passage carefully and answer the questions that follow it:—

*The End of the Great Plague.*

“September came: the heat of the atmosphere began to abate; but, contrary to expectation, *the mortality increased*. To dissipate the pestilential vapours, fires of sea-coal were kindled in all the streets of London. They were kept burning three days and nights, and were at last extinguished by a heavy and continuous fall of rain. The next death-roll exhibited a considerable reduction in the number of victims; and the survivors congratulated each other on the cheering prospect. But *the cup was soon dashed from their lips*; and in the following week more than ten thousand victims—a number hitherto unknown—sank under the augmented violence of the disease. Yet, even now, when hope had yielded to despair, their deliverance was at hand. The high winds, which usually accompany *the autumnal equinox*, cooled and purified the air; the fever, though equally contagious, assumed a less malignant form, and its ravages were necessarily more confined, from the diminution of the population on which it had hitherto fed. The weekly burials successively decreased from thousands to hundreds, and, in the beginning of December, seventy-three parishes were pronounced clear of the disease. The intelligence was hailed with joy by the emigrants, who returned in crowds to take possession of their homes: in February the Court was once more fixed at Whitehall, and the nobility and gentry *followed the footsteps of the Sovereign*. Though more than one hundred thousand individuals are said to have perished, yet in a short time *the chasm in the population* was no longer discernible.”

- (a) Narrate, concisely and in simple English, the progress of events from September to February.
- (b) Explain the expressions printed in italics.
- (c) Distinguish between root and affix in the following words, giving, where you can, the force of the affix:—Disease, survivor, purify, prospect, weekly.
- (d) Give the exact meaning of the following words as used in this passage:—mortality, dissipate, augmented, contagious, malignant, intelligence, emigrants.

Make a noun and an adjective from *extinguish* ;  
make an adjective from *equinox*. (35)

3. Make a general grammatical analysis of the following sentences and parse the words printed in italics :—

- (a) A mechanic his labour will often discard  
If the *rate* of his pay he dislikes ;  
But a clock—and its case is exceedingly hard—  
Will continue to work though it strikes.
- (b) As he stood on the shore, he noted the spot  
where the submarine went *down*. (10)

4. Arabs digging in ruins—find earthenware crock—  
quarrel over it—all killed but one—breaks crock—finds  
only a clod of earth.

Compose these facts into a continuous paragraph,  
bringing in the words—excavate (*or* excavation), dis-  
covery, greed, treasure, wrangle, survivor. (15)

5. Explain the following expressions, as they are  
used in History or in Geography :—Divine Right of  
Kings, The Industrial Revolution, The Disruption, The  
Black Country, Monsoon Lands. (10)

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## LEAVING CERTIFICATE EXAMINATION, 1927

### ENGLISH

(INCLUDING LITERATURE AND HISTORY)

(FIRST PAPER)

Monday, 21st March—10 A.M. to 12.30 P.M.

FOUR questions should be attempted, *viz.*, one of the options  
in Question 1, the whole of Questions 2 and 3, and one  
of the options in Question 4.

The value attached to each question is shown in brackets  
after the question.

**N.B.**—Write legibly and neatly. Marks will  
be deducted for bad writing.

1. Write a composition of about two pages on *any*  
one of the following :—

- (a) “Manners makyth Man.”

- (b) A Day in the Life of a Country Doctor.
- (c) The Educational Value *either* of Broadcasting, *or* of the Cinematograph.
- (d) Asked what was the object of the war against Napoleon, Pitt replied, "In one word, security." Explain and discuss Pitt's answer.

(35)

2. Read the following passage carefully, and then answer the questions that follow it:—

*In the Jura.*

"It is a spot which has all the solemnity, with none of the savageness, of the Alps; where there is a sense of a great power beginning to be manifested in the earth, and of a deep and majestic concord in the rise of the long low lines of piny hills; the first utterance of those mighty mountain symphonies, soon to be more loudly lifted and wildly broken along the battlements of the Alps. But their strength is as yet restrained; and the far-reaching ridges of pastoral mountain succeed each other, like the long and sighing swell which moves over quiet waters from some far off stormy sea. And there is a deep tenderness pervading that vast monotony. The destructive forces and the stern expression of the central ranges are alike withdrawn. No frost-ploughed, dust-encumbered paths of ancient glacier fret the soft Jura pastures; no splintered heaps of ruin break the fair ranks of her forests; no pale, defiled, or furious rivers rend their rude and changeful ways among her rocks. Patiently, eddy by eddy, the clear green streams wind along their well-known beds."—JOHN RUSKIN.

- (a) Bring out in your own words the contrast between the scenery of the Jura mountains and of the Alps. (Your summary should be about half the length of the original.) Point out and comment on (1) a metaphor and (2) a simile by which this contrast is elaborated. What other literary devices does Ruskin employ to give effect and beauty to his description?
- (b) Distinguish shades of meaning in—solemn, majestic, mighty, vast. Give the exact meaning of—concord, symphonies, pastoral, monotony, fret, rude—as here used; add the derivation where you can. (30)



3.—(a) In the following stanza, point out *four* examples of “poetic diction,” *i.e.* of words or constructions not permissible in ordinary prose; give their prose equivalents; describe the metre, indicate the rhyme-scheme, and name the stanza:—

“Branches they bore of that enchanted stem,  
Laden with flower and fruit, whereof they gave  
To each, but whoso did receive of them,  
And taste, to him the gushing of the wave  
Far far away did seem to mourn and rave  
On alien shores, and if his fellow spake,  
His voice was thin, as voices from the grave;  
And deep-asleep he seem'd, yet all awake,  
And music in his ear his beating heart did make.”

(b) On what grounds, if any, would you justify apparent grammatical irregularities in the following idioms:—

- (1) I am good friends with him.
- (2) Be thou, spirit fierce,  
My spirit! Be thou me, impetuous one.
- (3) Nodding their heads before her goes  
The merry minstrelsy.
- (4) If you forgive not every one his brother their  
trespasses . . . .

(15)

4. *Either* (a) Turn the following paragraph into idiomatic modern English. Comment on the difference between Caxton's use and the modern use of the words italicised:—

“And when I had *advised* me in this said book, I deliberated and concluded to translate it into English; and forthwith took a pen and ink and wrote a *leaf* or *twain*, which I *oversaw* again to correct it. And when I saw the fair and strange terms therein, I doubted that it should not please some gentlemen which late blamed me, saying that in my translations I had *over-curious* terms which could not be understood of the common people, and desired me to use old and homely terms in my translations. And fain would I satisfy every man, and so to do would take an old book and read therein, and certainly the English was so rude and broad that I could not well understand it. And also my lord Abbot of Westminster did show to me late certain documents written in old English for to *reduce* it into our English now

used. And certainly it was written in such wise that it was more like to High Dutch than English, I could not reduce it nor bring it to be understood.”—W. CAXTON.

(20)

Or (b) Turn the following passage into standard English. Compare each of the italicised words with an English word of the same spelling or from the same root:—

“Noo, Jenny,” said the innkeeper, “be civil to the curate and the cornet—clergy and captains can gie an unco deal o’ fash in thae times, where they take an ill-will. The dragoons will be crying for ale, and they wanna want it, and maunna want it—they are unruly chields, but they pay ane some *gate* or other. I gat the humle-cow,<sup>(1)</sup> that’s the best in the byre, frae black Frank Inglis and Sergeant Bothwell, for ten pund Scots, and they drank out the price at ae downsitting.”

“But, father,” interrupted Jenny, “they say the twa reiving loons drave the cow frae the gudewife o’ Bell’s-moor, just because she gaed to hear a field-preaching ae Sabbath afternoon.”

“Whisht! ye silly tawpie,” said her father, “we have naething to do how they come by the *bestial* they sell—be that atween them and their consciences.—Aweel—Take notice, Jenny, of that dour *carle* that sits by the cheek o’ the ingle, and turns his back on a’ men. He looks like ane o’ the hill-folk,<sup>(2)</sup> for I saw him start a wee when he saw the red-coats, and I *jalouse* he wad hae liked to hae ridden by, but his horse was ower sair *travailed*; he behaved to stop whether he wad or no.”—SIR WALTER SCOTT.

(20)

(<sup>1</sup>) “humle-cow” = hornless cow. (<sup>2</sup>) “hill-folk” = Covenanters.

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## ENGLISH

(INCLUDING LITERATURE AND HISTORY)

(SECOND PAPER—LITERATURE)

Monday, 21st March—1.30 P.M. to 2.30 P.M.

Answer the FIRST Question, and any ONE of the others.  
Twenty marks are assigned to each question.

**N.B.—Write legibly and neatly. Marks will be deducted for bad writing.**

1. Compare the following three descriptions of winter. Consider in each case the visible scene, the human element, and the feeling which the description inspires :—

(a) “ When all aloud the wind doth blow,  
And coughing drowns the parson’s saw :  
And birds sit brooding in the snow,  
And Marian’s nose looks red and raw :  
When roasted crabs<sup>(1)</sup> hiss in the bowl,  
Then nightly sings the staring owl—  
    To-whit ! to-who ! a merry note,  
    While greasy Joan doth keel<sup>(2)</sup> the pot.”

(b) “ When biting Boreas, fell and dour,  
Sharp shivers thro’ the leafless bow’r ;  
When Phœbus gies a short-lived glow’r,<sup>(3)</sup>  
    Far south the lift,<sup>(4)</sup>  
Dim-dark’ning thro’ the flaky show’r  
    Or whirling drift :  
Ae night the storm the steeples rocked ;  
Poor Labour deep in sleep was locked.” . . .

(c) “ I never shall love the snow again  
    Since Maurice died :  
With corniced drift it blocked the lane,  
And sheeted in a desolate plain  
    The countryside.

“ The trees with silvery rime bedight  
    Their branches bare.  
By day no sun appeared ; by night  
The hidden moon shed thievish light  
    In the misty air.”

(1) ‘crabs’ = crab-apples.

(2) ‘keel’ = cool or skim.

(3) ‘glow’r’ = angry stare. (4) ‘lift’ = sky.

2. Describe the personal appearance (a) of *any one* of Chaucer’s Pilgrims ; and (b) of *any one* of Shakespeare’s characters as you picture him or her, explaining on what hints in Shakespeare your picture has been formed. Why are Shakespeare’s descriptions so much less deliberate and full than Chaucer’s ?

3. Recount the story of *any one* Book **either** of the *Faerie Queene* **or** of *Paradise Lost*, and describe briefly the style of the poem.

4. Trace the succession of scenes which the poet calls up in *any two* of these poems : *Alexander’s Feast*,

*The Bard, Hartleap Well, Ode to the West Wind, Ode to a Nightingale, The Lady of Shalott, De Gustibus, The Blessed Damozel.* Describe the metre of the poem selected.

5. "I am myself the matter of my book. I depict myself." Illustrate with reference to your favourite essayist.

6. Compare or contrast *any one pair* of the following pairs of characters :—Mr. Pickwick and Jonathan Oldbuck (in *The Antiquary*); the Vicar of Wakefield and Dominie Sampson; Henry Esmond and the Baron of Bradwardine (in *Waverley*); Alan Breck and Dugald Dalgetty; Dinah Morris and Jeanie Deans.

7. "The biographical part of literature is what I love most." Do you agree with this remark of Dr. Johnson's? Name *two or three* famous biographies, and give a short account of the authorship and subject of *any one* of them.

8. Do you consider the present age one of the great ages of English Literature? Compare it from this point of view with the Elizabethan Age, *or* with the Augustan Age, *or* with the Victorian Age.

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## ENGLISH

(INCLUDING LITERATURE AND HISTORY)

(THIRD PAPER—HISTORY)

Monday, 21st March—2.45 P.M. to 3.45 P.M.

*Only TWO questions should be attempted. Twenty marks are assigned to each question.*

**N.B.—Write legibly and neatly. Marks will be deducted for bad writing.**

1. "The Roman Occupation of Britain has little or no connexion with English History." Discuss this statement.

2. Compare the achievements of the three following sovereigns of England :—Alfred, Canute, William I.

3. Illustrate the political influence of the Church between the accession of Henry I and the death of John.

4. *Either* : Trace the development of the English Parliament up to the death of Edward III;

*Or* : Account for the failure of the first three Edwards to conquer Scotland.

5. Explain the political effects of the marriages of *three* of the following sovereigns:—Malcolm Canmore, Henry II, Edward II, Edward IV, James IV, Mary Tudor, Ferdinand V of Aragon, Louis XVI of France.

6. How was Europe affected by the Crusading movement? (Think of social life and manners as well as of political history.)

7. Show the importance of any *three* of the following in economic history:—Guilds, the Peasants' Revolt, the Fishing Industry in the 15th century, Enclosures, Merchant Adventurers.

8. "The English Reformation was the work of the crown; the Scottish Reformation was the work of the people." Discuss this statement.

9. *Either* : Show how the foreign policy of any *three* of the following rulers affected their popularity at home:—James VI and I, Cromwell, Louis XIV of France, Charles II, George I.

*Or* : Suggest reasons for the greatness of England under (a) Elizabeth, and (b) Anne.

10. Draw a map to illustrate any *one* of the following and explain the importance of the places you mark in connection with the events to which your map relates:—

(a) The growth of British dominion in India between 1750 and 1850.

(b) The War of American Independence.

(c) Civil wars in Scotland from 1660 to 1746.

(d) The spread of British dominion in South Africa since 1815.

(e) The Peninsular War.

11. Discuss *one* of the following topics:—

(a) The career of William Pitt, Earl of Chatham.



- (b) The effect of the French Revolution upon domestic politics in England and Scotland.
- (c) The history of Canada as a British Colony.
- (d) The internal reforms which immediately followed the extension of the franchise in 1832.

12. What important movements do you associate with the name of any *one* of the following:—John Wesley, Samuel Wilberforce, Sir Robert Peel, Thomas Chalmers, Benjamin Disraeli, Charles Stewart Parnell?

13. In European history the year 1848 is known as “the year of Revolutions.” What are the reasons for the name?

14. The traditional foreign policy of Great Britain is said to be isolation from continental controversies. How far is this statement supported by a study of the years between 1870 and 1914?

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## GEOGRAPHY

### LOWER GRADE

Wednesday, 23rd March—10 A.M. to 12.30 P.M.

SIX questions should be attempted, viz., the whole of Section A, TWO questions from Section B, and TWO questions from Section C.

*The value attached to each question is shown in brackets after the question.*

**N.B.—Write legibly and neatly. Marks will be deducted for bad writing.**

#### SECTION A.

*The whole of this Section should be attempted.*

1. On the accompanying map of part of the British Isles—

- (a) Mark with the letters XX two coal-mining areas from which coal is largely exported, and mark and name in each area a port engaged in the trade; mark with HH two areas where the coal is used

chiefly in local industries, marking and naming one manufacturing town in each area; mark with DD two areas in which dairying is largely carried on, marking and naming one local centre in each area. In each case one of the areas marked should be in England and one in Scotland.

(b) Mark with a cross—Pentland Firth, Menai Strait, Tees estuary, the Peak of Derbyshire, the Pentland Hills, Strangford Lough. Print the names close to the crosses.

(c) Draw a firm dotted line to show the *main* water-parting of Northern England. Shade lightly the hill groups in Northern England which rise more than 1,000 feet above sea-level, and name these groups. Draw, with careful reference to the contours, the railway line from Carlisle to Crewe, marking and naming these stations and also the highest point crossed by the line. (20)

2. On the accompanying map of the Indian Ocean—

(a) Name the rivers Yangtse, Indus, Irrawaddy, Murray-Darling, Limpopo, Tigris; and mark and name the towns of Durban, Mandalay, Basra, Madras, Hankow, Adelaide.

(b) Show by carefully-drawn dotted lines a steamship route from Port Said to Perth (Western Australia), and one from Calcutta to Hong-Kong. Mark and name in each case two possible intermediate calling stations.

(c) Print the following names in their appropriate places on the map:—Anglo-Egyptian Sudan, Kenya, Natal, Persia, Malay States, Punjab, and under each name print that of one important product of the area concerned. (20)

### SECTION B.

Two questions should be attempted from this Section.

3. Name the four largest towns of Scotland; show, by means of simple outline sketch-maps, the precise position of each; and discuss shortly the reasons for the importance of each of the four towns.

Why are there more large towns on the east than on the west coast of Scotland? (15)

4. Give a reasoned account of the distribution of population in Wales and of its relation to the natural resources of the various districts of the country. (15)

5. Compare the climate of East Anglia with that of South-West Ireland, and the climate of North-East Scotland with that of South-East England, giving reasons for the differences and discussing their effects on products. (15)

6. Name *three* areas within the British Islands which are largely frequented by holiday-makers, and explain fully (a) why these areas are so much visited and (b) from what regions most of their visitors come. Bring out the geographical factors clearly. (15)

### SECTION C.

*Two questions should be attempted from this Section.*

7. Compare and contrast the Italian and the Scandinavian peninsulas as regards climate, products, and the occupations of the inhabitants. (15)

8. Select *one* of the following areas and give some account of its geography with special reference to products, trade outlets and lines of communication:—Prairie Provinces of Canada; Egypt; Chile; the Mississippi Basin. Illustrate by a sketch-map. (15)

9. Name one part of the British Empire in which timber is produced largely, one yielding wool, one yielding rubber, and explain in each case the causes which favour large-scale production. (15)

10. Give a brief account of the causes which determine (a) the total rainfall of an area, and (b) the distribution of the rainfall throughout the year. Illustrate *either* from India, *or* from Australia, *or* from South Africa. (15)

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## GEOGRAPHY

## HIGHER GRADE

Wednesday, 23rd March—10 A.M. to 12.30 P.M.

FIVE questions should be attempted, viz., the whole of Section A, TWO questions from Section B, and TWO questions from Section C.

The value attached to each question is shown in brackets after the question.

**N.B.**—Write legibly and neatly. Marks will be deducted for bad writing.

## SECTION A.

*The whole of this Section should be attempted.*

1. The accompanying map shows a part of the Tweed valley with the lower courses of the Gala, Leader, and Ettrick Waters :—

(a) Write a careful description of the drainage of the area shown, with particular reference to the relation between the river valleys and the lines of communication, both roads and railways.

(b) Describe very carefully the position of Galashiels, Melrose, and Earlston, illustrating by contoured sketch-maps. What deductions can be drawn from the map as to the present relative importance of these three places and the probable occupations of their inhabitants?

(c) Write a description of the Eildon Hills (*see* the south-east corner of the map), making diagrams to show the relative steepness of their slopes in different directions. (36)

## SECTION B.

*Two questions should be attempted from this Section.*

2. Compare the industries carried on respectively in (a) the South Wales coalfield, and (b) the Northumberland and Durham coalfield, explaining the differences so far as you can. Illustrate by sketch-maps. (16)

3. Select an area within the British Isles characterised by the predominance of *one* of the following kinds of rock:—chalk; massive limestones; clays; metamorphic rocks. In the case selected describe the relief and scenery and discuss the effects of the geology on human life. (16)

4. The following climatic statistics refer to four towns in Europe, all situated at or comparatively near sea-level. Discuss fully the climate of each station so far as it is brought out by the figures, and suggest a possible position for each:—

Station.	Aver. Temp.		Mean Annual Rainfall. (inches)	Mean Precipitation of Wettest Month. (inches)	Mean Precipitation of Driest Month. (inches)
	Hottest Month.	Coldest Month.			
a. (Lat. 56°)	58°	38°	25	3 (Aug.)	1·5 (April)
b. (Lat. 38°)	81°	48°	15	3 (Nov.)	0·3 (July)
c. (Lat. 52°)	59°	45°	56	6·5 (Dec.)	3·0 (May)
d. (Lat. 56°)	66°	12°	21	3 (Aug.)	0·9 (Feb.)

(16)

5. Name *four* plants of economic value extensively cultivated in France, indicate generally the distribution of each within the country, and show how this is related to the climate and relief. (16)

6. Give a geographical account, illustrated by a sketch-map, of Czecho-Slovakia, *or* of Roumania, *or* of Poland, with special reference to products, communications and trade outlets. (16)

### SECTION C.

*Two questions should be attempted from this Section.*

7. Name *four* important coaling-stations on the course of great ocean routes. State the exact position of each, indicating why it is important. Explain in each case where the station obtains its bunker coal, and in cases where this has to be imported, state whether there is *or* is not a possibility of a return cargo. (16)

8. How would you proceed to make in the field a sketch-map of a small area? Illustrate very carefully, explaining the reasons for each step in your procedure, and drawing an outline sketch-map to show the finished result. (16)

9. Write short notes explaining how the history of discovery throws light on the presence (1) of a Spanish



element in the present population of (a) South America and (b) Mexico; (2) of a French element (c) on the shores of the St. Lawrence River and (d) in New Orleans; (3) of a Dutch element in South Africa; (4) of a Portuguese element in Brazil. (16)

10. Give an account of the distribution of rainfall in India, discussing both its distribution throughout the year and its distribution over the country. Explain the reasons for the distribution you describe and discuss shortly the relation of the rainfall to crop production. (16)

11. Write a geographical description, illustrated by a sketch-map, of Nigeria, or of Argentina, or of Natal. (16)

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## L A T I N

### LOWER GRADE

Friday, 25th March—10 A.M. to 12.30 P.M.

*The value attached to each question is shown in brackets after the question.*

**N.B.—Write legibly and neatly. Marks will be deducted for bad writing.**

1. Translate into English :—

(a) *Caesar arrives in the province of Africa to conduct the campaign against the Pompeians in person.*

Caesar interim, cum de suo adventu dubitatio in provincia esset neque quisquam crederet ipsum, sed aliquem legatum, in Africam cum copiis venisse, scriptis litteris circum provinciam omnes civitates facit de suo adventu certiores. Interim nobiles homines in castra Caesaris pervenire et de adversariorum eius crudelitate acerbitateque commemorare coeperunt. Quorum lacrimis querellisque Caesar commotus, cum antea constitisset e stativis castris<sup>(1)</sup> nisi aestate inita cunctis copiis auxiliisque additis non egredi, bellum cum suis adversariis gerere instituit. Itaque litteras celeriter in Siciliam ad Allienum et Rabirium Postumum scripsit et per catascopum<sup>(2)</sup>

misit, ut sine mora atque ulla excusatione hiemis ventorumque quam celerrime exercitus sibi transportaretur : Africam provinciam perire funditusque everti ab suis inimicis ; nisi celeriter sociis foret subventum, praeter ipsam Africam terram nihil, ne tectum quidem, quo se reciperent, ab illorum scelere insidiisque reliquum futurum. Atque ipse in tanta erat festinatione et expectatione, ut postero die quam misisset litteras nuntiumque in Siciliam, classem exercitumque morari diceret, dies noctesque oculos ad mare directos haberet. Nec mirum : animadvertibat enim villas exuri, agros vastari, pecus diripi, homines trucidari, oppida castellaque dirui ac deleri. (25)

(1) *stativa castra* = stationary camp.

(2) *catascopus* = spy-ship.

- (b) *Daedalus pleads with the tyrant Minos to allow him, and his son Icarus, to return to his native land from Crete. When his entreaties prove vain, he resolves to make wings and fly over the sea.*

“ Sit modus<sup>(1)</sup> exilio,” dixit, “ iustissime Minos ;

Accipiat cineres terra paterna meos.

Et quoniam in patria, fatis agitatus iniquis,

Vivere non potui, sit mihi posse mori.

Da reditum puero, senis est si gratia vilis<sup>(2)</sup> ;

Si non vis puero parcere, parce seni.”

Dixerat haec ; sed et haec, et multo plura licebat

Dicere : regressus<sup>(3)</sup> non dabat ille viro.

Quod simul ac sensit, “ Nunc, nunc, o Daedale,” dixit,

“ Materiam, qua sis ingeniosus, habes.

Possidet et terras et possidet aequora Minos ;

□ Nec tellus nostrae nec patet unda fugae.

Restat iter caeli ; caelo temptabimus ire.

Da veniam coepto, Iupiter alte, meo.” (25)

(1) *limit.*

(2) *of little worth (account).*

(3) *noun.*

## 2. Translate into Latin :—

- (1) You will be allowed to go home when your work is finished.
- (2) The sooner you depart to the country, the better it will be.
- (3) Who knows whether we ought to fight or surrender ?

- (4) Let us not leave in the ships the bodies of men who died for their country.
- (5) Never blame any man before you know he has done wrong.
- (6) Was he not the first to be informed that the enemy had been defeated?
- (7) It makes a great difference whether you are lying or telling the truth.
- (8) The town we have been besieging for ten years will soon be taken.
- (9) The cavalry charged so fiercely that the enemy were routed and fled.
- (10) He turned to his friend and asked him when he meant to return to Rome. (30)

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## LATIN

### HIGHER GRADE—(FIRST PAPER)

Friday, 25th March—10 A.M. to 12 NOON

*The value attached to each question is shown in brackets after the question.*

**N.B.—Write legibly and neatly. Marks will be deducted for bad writing.**

Translate the following passages into English :—

1. *The forces of Syphax, King of Numidia, have been defeated by Scipio, and Syphax himself is brought captive into the Roman camp.*

Syphacem in castra adduci cum esset nuntiatum, omnis velut ad spectaculum triumphi multitudo effusa est. Praecedebat ipse vinctus, sequebatur grex nobilium Numidarum. Tum quantum quisque plurimum poterat, magnitudini Syphacis famaеque gentis victoriam suam augendo<sup>(1)</sup> addebat; illum esse regem, cuius maiestati tantum duo potentissimi in terris tribuerint populi, Romanus Carthaginensisque, ut Scipio imperator suus ad amicitiam eius petendam, relicta provincia Hispania exercituque, duabus quinqueremibus<sup>(2)</sup> in Africam navigaverit, Hasdrubal Poenorum imperator non ipse modo ad eum in regnum venerit, sed etiam filiam ei nuptum dederit. Sicut ab dis immortalibus pars utraque hostiis<sup>(3)</sup> mactandis pacem petisset, ita ab eo utrimque pariter amicitiam petitam. His sermonibus circumstantium cele

bratus rex in praetorium ad Scipionem est perductus. Movit et Scipionem cum fortuna pristina viri praesenti fortunae conlata, tum recordatio hospitii dextraeque datae et foederis publice ac privatim iuncti. Eadem haec et Syphaci animum dederunt in adloquendo victore.

(30)

(1) augendo = augendi causa.

(2) ship or galley with five banks of oars, quinquereme.

(3) hostia = a victim.

2. *The aged Cato argues for the immortality of the soul.*

An censes, ut de me ipse aliquid more senum glorier, me tantos labores diurnos nocturnosque domi militiaeque suscepturum fuisse, si isdem finibus gloriam meam, quibus vitam, essem terminaturus? Nonne melius multo fuisset otiosam et quietam aetatem sine ullo labore et contentione traducere? Sed nescio quo modo animus erigens se posteritatem ita semper prospiciebat, quasi cum excessisset e vita, tum denique victurus esset. Quod quidem ni ita se haberet, ut animi immortales essent, haud optimi cuiusque animus maxime ad immortalitatis gloriam niteretur. Quid quod sapientissimus quisque aequissimo animo moritur, stultissimus iniquissimo, nonne vobis videtur is animus, qui plus cernat et longius, videre se ad meliora proficisci, ille autem, cuius obtusior sit acies, non videre? —

(25)

3. *The Rutulians renew the assault, and the Trojans, among whom the young Ascanius is conspicuous, seek to repulse them with missiles.*

Interea Rutuli portis circum omnibus instant sternere caede viros et moenia cingere flammis.

At legio Aeneadum vallis obsessa tenetur,  
nec spes ulla fugae. Miseri stant turribus altis  
nequiquam et rara muros cinxere corona

Asius Imbrasides Hicetaoniusque<sup>(1)</sup> Thymoetes  
Assaracique duo et senior cum Castore Thymbris.

Fert ingens toto conixus corpore saxum,  
haud partem exiguam montis, Lyrnesius<sup>(2)</sup> Acmon,  
nec Clytio genitore minor nec fratre Menestheo.

Hi iaculis, illi certant defendere saxis,  
molirique<sup>(3)</sup> ignem nervoque aptare sagittas.

Ipse inter medios, Veneris iustissima cura,  
Dardanius caput ecce puer detectus honestum,  
qualis gemma micat, fulvum quae dividit aurum,  
aut collo decus aut capiti.

(25)

(1) the son of Hicetaon.

(2) from Lyrnesus.

(3) hurl.

## L A T I N

## HIGHER GRADE—(SECOND PAPER)

Friday, 25th March—1.30 P.M. to 3.30 P.M.

*The value attached to each question is shown in brackets after the question.*

**N.B.—Write legibly and neatly. Marks will be deducted for bad writing.**

1. Translate into Latin prose :—

Having come to this decision they sent three spies<sup>(1)</sup> to Asia. When these men reached Sardis<sup>(2)</sup> and found out about the King's army, they were arrested and, after being examined by the generals, were led off to die. But Xerxes, happening to learn of these events, found fault with the decision of his generals and ordered some of his soldiers to bring the spies to him, if they could find them alive. This was done; the spies were brought into the royal presence, and Xerxes was informed by them where they came from and what was the object of their mission. He then commanded the soldiers to lead them round and show them the size of his army, both foot and horse. When they had seen everything, he allowed them to depart unhurt to whatsoever land they desired. His idea was that if the spies got back to Greece and told their countrymen of the extent of his resources, the Greeks would probably surrender of their own free will, and it would therefore be unnecessary for him to invade their country. (40)

(1) spy = speculator.

(2) Sardes (plural).

2. Translate into Latin :—

- (1) I had found out what you were going to do before you could inform me.
- (2) When his army was defeated with the loss of five hundred men, the general retired with all speed to a place of safety.
- (3) They were so far from pleasing their enemies that they did not even satisfy their friends.
- (4) Although it is to my interest that we should do this, I refuse to betray our soldiers.



- (5) I know that this is just and honourable:  
I leave it to wiser men to decide whether  
it is expedient.
- (6) Do you think the Gauls are so foolish as to  
hope to be able to resist the Romans?
- (7) Ariovistus answered that unless Caesar left  
his territory he would regard him as an  
enemy.
- (8) He made a long speech in the senate without  
persuading any one. (30)

## GREEK

## LOWER GRADE

Monday, 28th March—10 A.M. to 12.30 P.M.

*The value attached to each question is shown in brackets  
after the question.*

**N.B.—Write legibly and neatly. Marks  
will be deducted for bad writing.**

I. Translate into English:—

(a) *Derdas and Teleutias save the Spartans and Boeotians  
from defeat at the hands of the Olynthians.*

ἐπεὶ δὲ καὶ οἱ πολέμιοι ἐλθόντες ἀντιπαρετάξαντο ὑπὸ  
τῷ τείχει, οἱ ἱππεῖς ἐμβάλλουσι κατὰ τοὺς Δάκωνας καὶ  
Βοιωτοὺς. καὶ Πολύχαρμόν τε τὸν Λακεδαιμόνιον ἵππαρχον  
καταβάλλουσιν ἀπὸ τοῦ ἵππου καὶ κείμενον πάμπολλα  
κατέτρωσαν,<sup>(1)</sup> καὶ ἄλλους ἀπέκτειναν, καὶ τέλος τρέπουσι τὸ  
ἐπὶ τῷ δεξιῷ κέρατι ἱππικόν. φευγόντων δὲ τῶν ἱππέων  
ἐνέκλιε καὶ τὸ πεζόν, καὶ ὄλον ἂν ἐκινδύνευσεν ἡττηθῆναι τὸ  
στράτευμα, εἰ μὴ Δέρδας ἔχων τὸ ἑαυτοῦ ἱππικὸν εὐθὺς πρὸς  
τὰς πύλας τῶν Ὀλυνθίων ἤλασεν. ἐπῆει δὲ καὶ ὁ Τελευτίας  
σὺν τοῖς περὶ ἑαυτὸν ἐν τάξει. ὡς δὲ ταῦτα ἤσθοντο οἱ  
Ὀλύνθιοι ἱππεῖς, δείσαντες μὴ ἀποκλεισθεῖεν τῶν πυλῶν,  
ἀναστρέψαντες ἀπεχώρουν πολλῇ σπουδῇ. ἔνθα δὴ ὁ  
Δέρδας παρελαύνοντας παμπόλλους ἱππέας αὐτῶν ἀπέκτεινεν.  
ἀπεχώρησαν δὲ καὶ οἱ πεζοὶ τῶν Ὀλυνθίων εἰς τὴν πόλιν·  
οὐ μέντοι πολλοὶ αὐτῶν ἀπέθανον, ἅτε ἐγγὺς τοῦ τείχους  
ὄντος. ὅ ἐπεὶ δὲ τροπαῖόν τε ἐστάθη καὶ ἡ νίκη αὕτη τῷ  
Τελευτίᾳ ἐγεγένητο, ἀπιὼν δὴ ἔκοπτε τὰ δένδρα. (25)

(1) καταπιρρώσκω = cover with wounds.

(b) *The death of Pericles.*

ἤδη δὲ πρὸς τῷ τελευτᾷ ὄντος αὐτοῦ παρακαθήμενοι τῶν πολιτῶν οἱ βέλτιστοι καὶ τῶν φίλων ἔνιοι λόγον ἐποιούντο τῆς ἀρετῆς καὶ τῆς δυνάμεως, ὅση γένοιτο, καὶ τὰς πράξεις ἀνεμετροῦντο<sup>(1)</sup> καὶ τῶν τροπαίων τὸ πλήθος· ἐννέα γὰρ ἦν ἂ στρατηγῶν καὶ νικῶν ἔστησεν ὑπὲρ τῆς πόλεως. ταῦθ' ὡς οὐκέτι συνιέντος<sup>(2)</sup> αὐτοῦ διελέγοντο πρὸς ἀλλήλους· ὁ δὲ πᾶσιν ἐτύγχανε τὸν νοῦν προσεσχηκῶς, καὶ φθεγξάμενος εἰς μέσον ἔφη θαυμάζειν ὅτι ταῦτα μὲν ἐπαινοῦσιν αὐτοῦ καὶ μνημονεύουσιν, ἂ καὶ ἔστι κοινὰ καὶ γέγονεν ἤδη πολλοῖς στρατηγοῖς, τὸ δὲ κάλλιστον καὶ μέγιστον οὐ λέγουσιν. “οὐδεὶς γάρ,” ἔφη, “δι' ἐμὲ τῶν ὄντων Ἀθηναίων μέλαν ἱμάτιον περιεβάλετο.” (25)

(1) ἀναμετροῦμαι = recapitulate.

(2) συνίημι = observe, understand.

## 2. Translate into Greek:—

- (1) If you do this, you will seem to everyone to be worthy of death.
- (2) They were afraid the enemy would attack<sup>(1)</sup> the city with a greater force.
- (3) They all knew that Socrates was the wisest of the Greeks.
- (4) He sent a letter before he himself arrived in Athens.
- (5) Just men should always obey the laws of their country.
- (6) At the same time they built the long walls from the city to the harbour.
- (7) The Archon ordered the citizens to remain in their houses.
- (8) I hope the horse will be given to the bravest soldier.
- (9) The rest of the Greeks no longer trust the Lacedæmonians.
- (10) They were so poor that they were always willing to receive money. (30)

(1) προσβάλλειν with dat.

## GREEK

## HIGHER GRADE—(FIRST PAPER)

Monday, 28th March—10 A.M. to 12 NOON

*The value attached to each question is shown in brackets after the question.***N.B.—Write legibly and neatly. Marks will be deducted for bad writing.**

Translate into English :—

1. *The achievements of Hercules and Theseus are compared.*

τῷ μὲν Ἡρακλεῖ Εὐρυσθεὺς προσέτατε τὰς τε βοῦς τὰς ἐκ τῆς Ἐρυθείας ἀγαγεῖν καὶ τὰ μῆλα τὰ τῶν Ἑσπερίδων ἐνεγκεῖν καὶ τὸν Κέρβερον ἀναγαγεῖν καὶ τοιοῦτους ἄλλους πόνους, ἐξ ὧν ἤμελλον οὐ τοὺς ἄλλους ὠφελήσειν ἀλλ' αὐτὸς κινδυνεύσειν· ὁ δὲ Θεσεὺς αὐτὸς αὐτοῦ κύριος ὧν τούτους προηρέιτο τῶν ἀγῶνων, ἐξ ὧν ἤμελλον ἢ τῶν Ἑλλήνων ἢ τῆς αὐτοῦ πατρίδος εὐεργέτης γενήσεσθαι. καὶ τὸν τε ταῦρον τὸν τὴν χώραν λυμαινόμενον, ὃν πάντες οὐκ ἐτόλμων ὑπομένειν, μόνος χειρωσάμενος μεγάλου φόβου καὶ πολλῆς ἀπορίας τοὺς οἰκοῦντας τὴν πόλιν ἀπήλλαξεν· καὶ μετὰ ταῦτα Λαπίθαις σύμμαχος γενόμενος, στρατευσάμενος ἐπὶ Κενταύρους τοὺς διφυεῖς, οἳ καὶ τάχει καὶ ῥώμῃ καὶ τόλμῃ διενεγκόντες<sup>(1)</sup> τὰς μὲν ἐπόρθουν, τὰς δ' ἤμελλον, ταῖς δ' ἠπείλουν τῶν πόλεων, τούτους μάχῃ νικήσας εὐθύς μὲν αὐτῶν τὴν ὕβριν ἔπαυσεν, οὐ πολλῶ δ' ὕστερον τὸ γένος ἐξ ἀνθρώπων ἠφάνισεν. (30)

<sup>(1)</sup> διαφέρειν = excel.2. *Philip's success in the past was due not to his better luck but to his greater energy.*

Εἰ δέ τις ὑμῶν τὸν Φίλιππον ὀρῶν εὐτυχοῦντα, φοβερὸν εἶναι νομίζει καὶ δυσπολέμητον, σώφρονος μὲν ἀνδρὸς χρῆται προνοία· μεγάλη γὰρ ῥοπή<sup>(1)</sup> ἢ τύχη πρὸς ἅπαντα τὰ τῶν ἀνθρώπων πράγματα· κατὰ πολλοὺς μέντοι τρόπους ἔλοιτ' ἂν τις οὐχ ἦττον τὴν ἡμετέραν εὐτυχίαν ἢ τὴν ἐκείνου. παρά τε γὰρ τῶν προγόνων ἐκ πλείονος χρόνου παρειλήφαμεν τὴν εὐδαιμονίαν, οὐ Φιλίππου μόνον, ἀλλὰ πάντων τῶν ἐν Μακεδονίᾳ βασιλευσάντων· κακέωιο μὲν Ἀθηναίοις φόρους ἤνεγκαν, ἢ δ' ἡμετέρα πόλις οὐδενὶ πω τῶν ἀπάντων. τί ποτ' οὖν ἐκέινος ἐν τῷ προτέρῳ πολέμῳ πλείω κατώρθωσεν ἡμῶν; ὅτι ὁ μὲν αὐτὸς στρατεύεται καὶ ταλαιπωρεῖ καὶ τοῖς κινδύνοις πάρεστιν, ἡμεῖς δ' οὐδὲν ποιοῦντες ἐνθάδε καθήμεθα, μέλλοντες αἰεὶ καὶ ψηφιζόμενοι καὶ πυνθανόμενοι κατὰ τὴν ἀγορὰν εἴ τι λέγεται νεώτερον. (30)

<sup>(1)</sup> influence.

## 3. Either (a) or (b)—

(a) *Dolon undertakes to go forth from Troy as a spy to reconnoitre the position of the Greeks.*

Ἄσ εἶπαθ', οἱ δ' ἄρα πάντες ἀκὴν ἐγένοντο σιωπῇ.  
 ἦν δέ τις ἐν Τρώεσσι Δόλων, Εὐμήδεος υἱὸς  
 κήρυκος θείοιο, πολύχρυσος πολύχαλκος,  
 ὃς δὴ τοι εἶδος μὲν ἔην κακός, ἀλλὰ ποδώκης·  
 αὐτὰρ ὁ μῦθος ἔην μετὰ πέντε κασιγνήτησιν·  
 ὃς ῥα τότε Τρωσὶν τε καὶ Ἔκτορι μῦθον ἔειπεν·  
 “Ἔκτορ, ἔμ' ὀτρύνει κραδίη καὶ θυμὸς ἀγήνωρ  
 νηῶν ὠκυπόρων σχεδὸν ἐλθέμεν ἔκ τε πυθέσθαι.  
 ἀλλ' ἄγε μοι τὸ σκῆπτρον ἀνάσχεο, καί μοι ὄμοσσοι  
 ἦ μὲν τοὺς ἵππους τε καὶ ἄρματα ποικίλα χαλκῶ  
 δωσέμεν, οἳ φορέουσιν ἀμύμονα Πηλεΐωνα.  
 σοὶ δ' ἐγὼ οὐχ ἄλιος<sup>(1)</sup> σκοπὸς ἔσσομαι οὐδ' ἀπὸ δόξης.<sup>(2)</sup>  
 τόφρα γὰρ ἐς στρατὸν εἶμι διαμπερές, ὄφρ' ἂν ἴκωμαι  
 νῆ' Ἀγαμεμνονέην, ὅθι που μέλλουσιν ἄριστοι  
 βουλὰς βουλεύειν, ἣ φευγέμεν ἢ ἐμάχεσθαι.”

(30)

(1) ineffectual.

(2) ἀπὸ δόξης = disappointing.

(b) *Andromache, wife of Hector, is now a slave in the house of Neoptolemus, who is married to Hermione, the daughter of Menelaus. She learns from her old servant (θεράπαινα) that Hermione and her father are plotting to kill her son, whom she had removed for safety.*

ΘΕΡ. δέσποιν', ἐγὼ τοι τοῦνομ' οὐ φεύγω τόδε  
 καλεῖν σ', ἐπέιπερ καὶ κατ' οἶκον ἠξίουν  
 τὸν σόν, τὸ Τροίας ἠνίκ' ᾤκουμην πέδον,  
 εὖνους δὲ καὶ σοὶ ζῶντί τ' ἦ τῷ σῷ πόσει·  
 καὶ νῦν φέρουσά σοι νέους ἦκω λόγους,  
 φόβω μὲν, εἴ τις δεσποτῶν αἰσθήσεται,  
 οἴκτῳ δὲ τῷ σῷ· δεινὰ γὰρ βουλένεται  
 Μενέλαος εἰς σὲ παῖς θ', ἃ σοὶ φυλακτέα.

ΑΝ. ᾧ φιλτάτη σύνδουλε, σύνδουλος γὰρ εἶ  
 τῇ πρόσθ' ἀνάσση τῆδε, νῦν δὲ δυστυχεῖ,  
 τί δρῶσι; ποίας μηχανὰς πλέκουσιν αὐ,  
 κτείναι θέλοντες τὴν παναθλίαν ἐμέ;

ΘΕΡ. τὸν παῖδά σου μέλλουσιν, ᾧ δύστηνε σύ,  
 κτείνειν ὃν ἔξω δωμάτων ὑπεξέθου.

ΑΝ. οἴμοι· πέπυσθον τὸν ἐμὸν ἔκθετον<sup>(1)</sup> γόνου;  
 πόθεν ποτ'; ᾧ δύστηνος, ὡς ἀπωλόμην.

ΘΕΡ. οὐκ οἶδ', ἐκείνων δ' ἠσθόμην ἐγὼ τάδε·  
 φροῦδος δ' ἐπ' αὐτὸν Μενέλεως δόμων ἄπο.

(30)

(1) sent away.

## GREEK

## HIGHER GRADE—(SECOND PAPER)

Monday, 28th March—2 P.M. to 4 P.M.

*The value attached to each question is shown in brackets after the question.*

**N.B.—Write legibly and neatly. Marks will be deducted for bad writing.**

Translate into Greek :—

1. The Romans were unwilling to begin another war at this time, but, when they heard that Postumius had been badly treated by the Tarentines,<sup>(1)</sup> they were so angry that they resolved to take vengeance on them. Accordingly, in the following year, one of the consuls<sup>(2)</sup> marched against Tarentum<sup>(3)</sup> with a large army. While the nobles were eager to save the city by submitting, the mass of the people said they would do or suffer anything rather than be the subjects<sup>(4)</sup> of Rome. After considering what was to be done in these circumstances, the citizens finally decided to summon Pyrrhus to their assistance. The King of Epirus<sup>(5)</sup> had recently tried in vain to become master of Macedonia and he was glad to go to the help of the Tarentines, in the hope that, having defeated the Romans, he might be able to conquer the whole of Italy. (40)

(1) Ταράντινοι.

(4) subject = ὑπήκοος.

(2) consul = ὑπατος.

(5) ἡ Ἰπείρος.

(3) Τάρας, Τάραντος (masc.).

- 2.—(1) Socrates always seemed to me to deserve honour rather than death.
- (2) As soon as the enemy saw our men approaching, they ran away.
- (3) The ambassadors said that the king had sent them to beg for peace.
- (4) When did you arrive in Athens, and how long do you mean to stay here?
- (5) Xenophon ordered the soldiers to bring guides into the camp whenever they could find any.

- (6) He said that affairs of state were no concern of his and refused to take part in them.
- (7) After storming the walls of the town the Athenian general decided to await the arrival of the fleet. (20)

## FRENCH

## LOWER GRADE

Thursday, 24th March—10 A.M. to 12.30 P.M.

*The value attached to each question is shown in brackets after the question.*

**N.B.—Write legibly and neatly. Marks will be deducted for bad writing.**

1. Translate into English :—

(a) Je voulais voir si les races vivantes m'offriraient plus de vertus ou moins de malheurs que les races évanouies. Comme je me promenais un jour dans une grande cité, en passant derrière un palais, dans une cour retirée et déserte, j'aperçus une statue qui indiquait du doigt un lieu fameux par un sacrifice. Je fus frappé du silence de ces lieux; le vent seul gémissait autour du marbre tragique. Des ouvriers étaient couchés avec indifférence au pied de la statue ou taillaient des pierres en sifflant. Je leur demandai ce que signifiait ce monument: les uns purent à peine me le dire, les autres ignoraient la catastrophe qu'il retraçait. Rien ne m'a plus donné la juste mesure des événements de la vie et du peu que nous sommes. Que sont devenus ces personnages qui firent tant de bruit? Le temps a fait un pas, et la face de la terre a été renouvelée.

(25)

(b) Le lendemain, les Allemands occupèrent le village. Ils vécurent là jusqu'à ce qu'ils eussent épuisé les provisions trouvées dans les maisons des cultivateurs et des marchands. Les habitants qui n'avaient pas fui leur cédèrent la place, firent pour eux la cuisine, tirèrent de l'eau des puits pour abreuver les chevaux, et transportèrent les bottes de foin et de paille où l'ordre fut donné de les porter. Le cinquième jour, tout à coup, les

Allemands se rassemblèrent et partirent. On se crut sauvé. Mais à peine le dernier de ces soldats couleur de poussière avait disparu, qu'une batterie se mit à bombarder le village. Les derniers habitants se sauvèrent à pied, par la même route qu'avaient suivie les premiers. Quelques-uns essayèrent de se cacher dans les caves ou derrière les murs des vergers. Mais les obus renversèrent les murs, incendièrent les maisons, l'une après l'autre, et Chaumecourt ne fut bientôt qu'un amas de ruines. (25)

2. Translate into French :—

London,

1st July, 1926.

DEAR JEAN,

Many thanks for your kind invitation, which I have just received. I should have liked very much to spend two or three days with you at the seaside. But I've not been very well for a fortnight and the doctor says I must stay at home and rest as much as possible. Not very easy, as all the children are on holiday. Holidays are really tiresome<sup>(1)</sup> sometimes, aren't they? I hope your children are enjoying themselves at Bridport. I hear that the bathing<sup>(2)</sup> and the tennis are excellent.

Now good-bye. I'm extremely sorry not to be able to come and see you all.

Yours affectionately,

HELEN.

(1) ennuyeux.

(2) bains de mer.

(15)

3. Translate into French :—

- (1) In Scotland it is cold in January. The sun rises late and sets early.
- (2) He promised to come and see me when he was in London.
- (3) What is the matter with you?—I fell yesterday and hurt myself.
- (4) Hurry up or you will be late. The train leaves at five minutes to six.
- (5) He came home a little before twelve and went to bed at once.
- (6) I hope you will be able to read what I have written to you.
- (7) Please ask your brother to bring back the books I lent him last week. (15)



## FRENCH

## HIGHER GRADE—(FIRST PAPER)

Thursday, 24th March—10 A.M. to 12 NOON

*The value attached to each question is shown in brackets after the question.*

**N.B.—Write legibly and neatly. Marks will be deducted for bad writing.**

Translate carefully, with due attention to English form and expression :—

1. Le premier sentiment de l'homme fut celui de son existence ; son premier soin celui de sa conservation. Les productions de la terre lui fournissaient tous les secours nécessaires ; l'instinct le porta à en faire usage . . . Telle fut la condition de l'homme naissant ; telle fut la vie d'un animal borné d'abord aux pures sensations, et profitant à peine des dons que lui offrait la nature, loin de songer à lui rien arracher. Mais il se présenta bientôt des difficultés ; il fallut apprendre à les vaincre ; la hauteur des arbres qui l'empêchait d'atteindre à leurs fruits, la concurrence des animaux qui cherchaient à s'en nourrir, la férocité de ceux qui en voulaient à sa propre vie, tout l'obligea de s'appliquer aux exercices du corps ; il fallut se rendre agile, vite à la course, vigoureux au combat. Bientôt il apprit à se servir des armes naturelles, branches d'arbres et pierres, qui se trouvaient sous sa main. Il apprit à surmonter les obstacles de la nature, à combattre au besoin les autres animaux, à disputer sa subsistance aux hommes mêmes, ou à se dédommager<sup>(1)</sup> de ce qu'il fallait céder aux plus forts. (25)

(<sup>1</sup>) compensate himself, make up to himself.

2. *Le Cimetière au bord de la Mer.*

Loin du monde et du temps, sous la garde des cieux,  
C'est là que du hameau reposent les aïeux.  
Là, sous l'épais gazon d'une terre inégale,  
D'où l'on voit d'humbles croix sortir par intervalle,  
Ils viennent, déposant leur fatigue et leurs maux,  
De la longue journée oublier les travaux.  
Ceux-ci, rameurs du port, dès la première étoile,  
Pour jeter leurs filets, arrondissaient la voile ;

Celui-là conduisait les chèvres au vallon ;  
 Cet autre dans la plaine allongeait le sillon,  
 Et chaque soir, du ciel observant les nuages,  
 Y cherchait pour ses blés de rassurants présages ;  
 Cependant qu'avec eux, et plus près de la croix,  
 Au milieu du troupeau qu'il guidait autrefois,  
 Leur pasteur dort lui-même, et, comme aux jours  
 de fête,

Pour les conduire au ciel reste encore à leur tête. (20)

3. *Cinna informs Aemilia that the plot he has formed against the Emperor Augustus, whom they and many of the Roman nobles regard as a ruthless tyrant, is ready for execution, and that his fellow-conspirators are eager to free their country from the Emperor's yoke.*

Plût aux dieux que vous-même eussiez vu de quel zèle  
 Cette troupe entreprend une action si belle !  
 Au seul nom de César, d'Auguste, et d'empereur  
 Vous eussiez vu leurs yeux s'enflammer de fureur,  
 Et dans un même instant, par un effet contraire,  
 Leur front pâlir d'horreur et rougir de colère.

“ Amis, leur ai-je dit, voici le jour heureux  
 Qui doit conclure enfin nos desseins généreux :  
 Le ciel entre nos mains a mis le sort de Rome,  
 Et son salut dépend de la perte d'un homme,  
 Si l'on doit le nom d'homme à qui n'a rien d'humain,  
 A ce tigre altéré de tout le sang romain.  
 Combien pour le répandre a-t-il formé de brigues,<sup>(1)</sup>  
 Combien de fois changé de partis et de ligues,  
 Tantôt ami d'Antoine et tantôt ennemi,  
 Et jamais insolent ni cruel à demi ! ” (20)

(<sup>1</sup>) *brigue* = intrigue.

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## FRENCH

HIGHER GRADE—(SECOND PAPER)

Thursday, 24th March—2.15 P.M. to 4.15 P.M.

*The value attached to each question is shown in brackets  
 after the question.*

**N.B.—Write legibly and neatly. Marks will  
 be deducted for bad writing.**

## 1. Translate into French:—

It was still light when the old woman I was speaking about came to a large house near the market, in a narrow, muddy street. Going through a dirty passage she reached a courtyard surrounded on all sides with buildings, and entered the room where she lived. It was a long dark room and in every corner there was a whole family of beggars. The old woman began by making her way to a heap of rags, then, with a groan, she put her bag on the floor and sat down on an old box near the rags. She next took from her pocket all the pieces of the Cup, and put them carefully on another box which served as a table. The first thing our Cup heard was a harsh noise from the farthest corner of the room; the beggars were all so used to it that nobody paid any attention. It was not so with the Cup. "Oh," it thought, "this is really too much! What company I have fallen into! How rude these people are! There is no one in the world who is so unhappy as I am. I would like to die as soon as possible." (40)

## 2. Translate into French:—

- (1) As I was passing your house last Monday I saw some one standing at the window.
- (2) Instead of showing her joy, my mother went on working without saying anything.
- (3) In the evenings I would remain hours in the library re-reading the letter she had sent me.
- (4) If anything serious happens on Tuesday I will let you know about it at once.
- (5) Shall I see you again before I go?—That depends. When do you go?—To-morrow: I hope to catch the 5 A.M. train. (15)

3. Write in French a continuous story (*about one and a half times as long as the answer to Question 1*) based on the following summary, and complete it in your own way:—

Boy of fourteen lived near a river—railway ran close to his father's house and crossed the river on a high bridge—boy loved to watch trains passing—every evening went to the railway to see the eight o'clock express pass and to wave<sup>(1)</sup> his handkerchief to the driver<sup>(2)</sup>, whom he knew. One dark, stormy evening boy heard a loud

crash—ran out and found that part of the bridge had been carried away—express due in five minutes—

(Complete the story in your own way).

(<sup>1</sup>) wave = *agiter*.

(<sup>2</sup>) engine-driver = *le mécanicien*.

(20)

## FRENCH

### HIGHER GRADE—(SECOND PAPER)

Thursday, 24th March—1.30 P.M. to 2 P.M.

*This paper must not be seen by any Candidate.*

*To be read out by the Teacher at 1.30 P.M. in the presence of the Supervising Officer.*

**To be written by the Candidates on the separate sheets provided, which must be collected before the Second French Paper is distributed.**

### DIRECTIONS FOR TEACHER.

1. *Read the passage aloud distinctly and deliberately, but not slowly, the object being to bring out the meaning of the whole as clearly as possible. Observe the liaisons as marked.*
2. *Inform the candidates that they may not ask for the repetition of any word or phrase.*
3. *Dictate the passage slowly, repeating each group of words (as indicated by vertical lines) twice over, and pronouncing every word very distinctly. The punctuation should be indicated thus :—(.) ‘un point,’ (,) ‘virgule,’ (;) ‘point virgule,’ (:) ‘deux points.’*
4. *After an interval of five minutes read the text over again in the same manner as on the first occasion, but do not on any account repeat separate words at the request of individual candidates.*

### DICTÉE.

Cet historien portait dans sa conscience | le témoin |  
 et l'accusateur formidable | qu'il aurait voulu | que  
 tout homme trouvât dans la sienne; | aussi n'avait-il  
 pas besoin | des dieux du vulgaire. | Il les a chassés  
 de l'histoire, | comme nos savants, | pour constituer leurs

sciences, | ont chassé du monde matériel | les puissances capricieuses | que l'antiquité et le moyen âge | avaient mises partout. | Il ne croit pas à cette déesse | tant adorée des anciens | et qui l'est encore des modernes, | la Fortune, | pas plus qu'il ne croit au Hasard, | au Destin : | mots commodes pour la faiblesse | et l'ignorance. | Il a des pensées plus viriles. | C'est dans l'âme humaine, | et non dans la volonté des dieux, | qu'il cherche | les mobiles des faits humains. | Pour lui | les États s'élèvent ou tombent, | s'ils sont bien ou mal gouvernés, | et les peuples | sont les artisans de leur destin. (10)

## GERMAN

### LOWER GRADE

Tuesday, 29th March—10 A.M. to 12.30 P.M.

*Marks will be deducted for failure to use the German script in the answer to Question 2.*

*The value attached to each question is shown in brackets after the question.*

**N.B.—Write legibly and neatly. Marks will be deducted for bad writing.**

1. Translate into English :—

(a) *A Scene in the Square of St. Mark at Venice.*

Auf dem Marknplatz war es leer ; der stürmische Herbstabend hatte niemand ins Freie gelockt. Volkhard fand kein bekanntes Gesicht, an das er sich hätte wenden können, nach Haus wollte er noch nicht wieder gehen, und so lenkte er den Schritt nach der Piazzetta und lehnte, Schutz suchend gegen den scharfen Wind, der vom Meer über die Lagunen herbrauste, an einer Seite der Säule, die den geflügelten Löwen von San Marko trägt. Es war lautlos auf dem Platz, und auch die Gondeln lagen still im Hafen. Eine einzige kam leise über die nächtlich dunklen Lagunen gezogen. Volkhard beobachtete sie träumend, wie sie näher und näher glitt, bis sie, an den Steinstufen anlegend, seinem Auge verschwand. Bald darauf schritt eine dunkle Gestalt, vom Landungsplatz heraufkommend, gerade auf ihn zu. Erst als sie ganz nahe bei ihm war, konnte er sie erkennen. Es war der Armenier, den er seit jener Nacht auf der Brücke nicht wieder gesehen hatte. Volkhard

überkam ein unbeschreiblich unheimliches Gefühl, das den Zorn niederhielt, der in ihm aufbrausen wollte, und das ihn unbeweglich an der Stelle bannte. Der Armenier trat nahe vor ihn hin und sagte geheimnisvoll flüsternd: „Ich suchte Euch.“ „Was wollt Ihr von mir?“ fragte in erregtem Ton der junge Mann. „Zu der Frage und in diesem Ton habt Ihr kaum ein Recht!“ war die Antwort. „Wißt Ihr nicht, daß Ihr mein Schuldner seid, und daß ich einen Gegendienst von Euch zu fordern habe?“

(25)

(b)

*A Scene from a Play.*

Arbeitszimmer im Hause Richards. Im Hintergrunde rechts und links Türen, in der Mitte ein Kamin, die ganze übrige Wand mit Bücherschränken bedeckt, welche Türen und Kamin umrahmen—reiche, ernste Ausstattung. Alte Bilder, alte Waffen. Die grünumschirmte Hängelampe und eine Tischlampe brennen. Abendbeleuchtung vom Fenster her.

Richard, Beate, und (später) Georg.

Beate. (steht in der geöffneten Tür, in Mantel und Hut, dicht verschleiert).

Richard. Beate! (Schließt die Tür.) Wo kommst du her?  
—Um Gottes willen—sag'!

Beate. Er lebt!

Richard. Hat dich jemand gesehen außer Georg?

Beate. Er lebt. (Sinkt zitternd auf einem Stuhl zusammen, das Gesicht in den Händen.)

Richard. Mein Gott, komm' doch zu dir! Was geht vor?  
Laß mich nicht so in Sorge! Liebste, was kann ich tun? Sag'!

Beate. Mich friert.

Richard. (Öffnet die Tür.) Georg! (Der Diener erscheint).  
Mach' Feuer im Kamin.

Georg. Jawohl, Herr Baron. (Kniet nieder und zündet an).

Richard. Und passen Sie auf, daß niemand uns stört. Frau Gräfin und ich haben etwas Wichtiges zu besprechen. Niemand, verstanden?

Georg. Jawohl.

Richard. Und wenn Frau Baronin inzwischen heimkommen sollte, dann sagen Sie nichts, melden es mir aber sofort.

Georg. Jawohl, Herr Baron. (Ab.)

Richard. So! Nun setz' dich ans Feuer! Aber leg' erst den Mantel ab - so!—und Hut und Schleier—

Beate. (läßt die Arme sinken.) Ich kann nicht.

Richard. Wart', wart', (Öst den Schleier). Mein Gott, wie bist du weiß! Komm' rasch! (Führt sie ans Feuer). So! Ist's gut so?

Beate. Alles ist gut, wenn du lebst!

(25)

2. Translate into German :—

(a) (1) Before you go to Germany you ought to learn the language.

(2) Buy some cherries for me, please, if the price is not too high.

(3) On hearing what had happened she wept bitterly.

(4) I do not know when I shall come back from Switzerland.

(5) Instead of doing his work diligently, the lazy boy plays all day. (15)

(b) I should like to know how the children are to go to school in such weather. They can do their work quite well at home, as they have all their books and I can give them two or three hours in the morning. You know how ill they were in winter. And whose fault will it be if they know nothing in later years? Nonsense, a day or two won't make any difference. And most of the other children will be absent too. (15)

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## GERMAN

HIGHER GRADE—(FIRST PAPER)

Tuesday, 29th March—10 A.M. to 12 NOON

*The value attached to each question is shown in brackets after the question.*

**N.B.—Write legibly and neatly. Marks will be deducted for bad writing.**



Translate carefully, with due attention to English form and expression :—

1. *Mont Blanc from Chamounix.*

Es wurde dunkler, wir kamen dem Tale Chamounix näher und endlich daren. Nur die großen Massen waren uns sichtbar. Die Sterne gingen nacheinander auf, und wir bemerkten über den Gipfeln der Berge, rechts vor uns, ein Licht, das wir nicht erklären konnten. Hell, ohne Glanz wie die Milchstraße, doch dichter, fast wie die Plejaden, nur größer, unterhielt es lange unsere Aufmerksamkeit, bis es endlich, da wir unsern Standpunkt änderten, wie eine Pyramide, von einem innern geheimnisvollen Lichte durchzogen, das dem Schein eines Johanniswürms<sup>(1)</sup> am besten verglichen werden kann, über den Gipfeln aller Berge hervorragte und uns gewiß machte, daß es der Gipfel des Mont-Blanc war. Es war die Schönheit dieses Anblicks ganz außerordentlich; denn, da er mit den Sternen, die um ihn herumstanden,

(1) Glow-worm.

zwar nicht in gleich raschem Licht, doch in einer breitem zusammenhängendern Masse leuchtete, so schien er den Augen zu einer höhern Sphäre zu gehören, und man hatte Mühe, in Gedanken seine Wurzeln wieder an die Erde zu befestigen. Vor ihm sahen wir eine Reihe von Schneegebirgen dämmernd auf den Rücken von schwarzen Fichtenbergen liegen und ungeheure Gletscher zwischen den schwarzen Wäldern herunter ins Tal steigen.

(30)

2. *A Vision of Departed Youth.*

Mich führte durch den Tannenwald  
Ein stiller Pfad, ein tief verschneiter,  
Da, ohne daß ein Huf geklirrte,  
Erblickt' ich plötzlich einen Reiter.

Nicht zugewandt, nicht abgewandt,  
Kam er, den Mantel umgeschlagen;  
Mir dachte, daß ich ihn gekannt  
In alten, längst verschollnen Tagen.

Der jungen Augen wilde Kraft,  
Des Mundes Trost und herbes Schweigen,  
Ein Zug von Traum und Leidenschaft  
Berührte mich so tief und eigen.

Sein Nößlein zog auf weißer Bahn  
Vorbei mit ungehörten Hufen.  
Mich faßt's mit Lust und Grauen an,  
Ihm Gruß und Namen nachzurufen.

Doch keinen Namen hab' ich dann  
Als meinen eigenen gefunden,  
Da Roß and Reiter schon im Tann  
Und hinter Schneegeflock verschwunden. (20)

3.

*A Village Blacksmith.*

In einem wasserdurchrauschten Gebirgstal schritt ich durch späte Mondnacht, als in mein Träumen ein fremder Ton drang. Es war das Hämmern einer Schmiede. Nur von Zeit zu Zeit, wie lauschend, schwieg der nächtliche Glöckner, und die Mainacht um mich herum atmete allein weiter. Als ich um eine Ecke der Landstraße bog, sah ich in hellem Feuerschein die Schmiede vor mir stehen. Und näher tretend sah ich auch den Schmied. Mitten in einem Funkenregen stand der Mann. Die Linke mit der Zange hielt das glühende Eisen gefaßt, und Schlag auf Schlag fuhr aus der kräftigen Rechten auf den dröhnenden Ambos. Ein herztählendes Bild! Ein Bismarck auf dem Dorfe! Groß und breit stand er, mit hoher, kahler Stirn, das männliche Antlitz durch buschige Brauen und einen kurzen Schnurrbart verfinstert. Den Hals nackt, die Hemdärmel bis unter die Schultern zurückgestulpt, das Schurzfell umgehängt—so steht er heute noch vor meiner Seele: ein Mann, der seine Pflicht tut! (20)

## GERMAN

## HIGHER GRADE—(SECOND PAPER)

Tuesday, 29th March—2.15 P.M. to 4.15 P.M.

*Marks will be deducted for failure to use the German script throughout.*

*The value attached to each question is shown in brackets after the question.*

1. Translate into German :—

(a) "It is a good heart," said Nicholas, "that can forget the dreary business of the day to notice such things. You were saying—"

“That the flowers belonged to this poor boy,” said Tim, “that’s all. When it is fine weather, and he can crawl out of bed, he draws a chair close to the window, and sits there looking at them all day long. We used to nod to each other at first, and then we began to speak. Formerly, when I called to him of a morning, and asked him how he was, he would smile and say, ‘Better’; but now he shakes his head, and only bends more closely over his old plants. It must be dull to watch the dark roofs and the flying clouds for so many months; but he is very patient.”

“Is there nobody in the house to cheer or help him?” asked Nicholas.

“His father lives there, I believe,” replied Tim, “and other people too; but no one seems to care much for the poor, sickly cripple. I have asked him very often if I can do nothing for him; his answer is always the same—‘Nothing’.” (35)

- (b) (1) Please bring us two cups of coffee with cream and some bread and butter.
- (2) Go straight on, follow the third street on the left, and the post-office is the first building round the corner.
- (3) The oftener you read a fine poem, the more you like it.
- (4) The doctor insists on my going for a long walk daily.
- (5) The boy said that his brother had not been able to help him. (10)

2. Free Composition. (*The answer to this question should be about one and a half times as long as the answer to Question 1. (a).*)

Write in German a free composition on one or other of the following subjects:—

*Either*

(a) A young German (boy or girl), knowing no English, comes to stay with you. As you are the only member of your family able to speak German you meet your guest at the station, conduct him (her) to your home and later go for a walk. Write in German an

account of your experience, using dialogue where appropriate.

Or

(b) Expand the following skeleton into a continuous narrative in German :—

Rich man motoring<sup>(1)</sup> in the country. Summer time—scenery beautiful. Passes through village. Street crowded. Runs over dog. Stops. Peasant standing near. Gentleman expresses regret. Compensation<sup>(2)</sup> is discussed. Ultimately peasant accepts 40 marks, then on departure of motorist remarks with glee : “ I wonder whose dog it was ! ” (25)

(1) Motor car = das Automobil.

(2) Compensation = der Ersatz.

## GERMAN

### HIGHER GRADE—(SECOND PAPER)

Tuesday, 29th March—1.30 P.M. to 2 P.M.

*This paper must not be seen by any Candidate.*

*To be read out by the Teacher at 1.30 P.M. in the presence of the Supervising Officer.*

**To be written by the Candidates on the separate sheets provided, which must be collected before the Second German Paper is distributed.**

### DIRECTIONS FOR TEACHER.

1. Read the passage aloud distinctly and deliberately, but not slowly, the object being to bring out the meaning of the whole as clearly as possible.
2. Inform the candidates that they may not ask for the repetition of any word or phrase, and warn them that marks will be deducted for failure to use the German script.
3. Dictate the passage slowly, repeating each group of words (as indicated by vertical lines) twice over, and pronouncing every word very distinctly. The punctuation should be indicated thus—(,) ‘Komma’, (.) ‘Punkt’, (:), ‘Kolon’, (;) ‘Semikolon’.

4. *After an interval of five minutes read the text over again in the same manner as on the first occasion, but do not on any account repeat separate words at the request of individual candidates.*

#### DICTATION.

In Deutschland war Winter. | Scharf pfiß der Nordwind  
über die Wälder; | die zackigen Zweige des Eichenwaldes | zitterten  
und froren. | Sterne blickten über leerem Lande; | Winteröde, |  
soweit der Gedanke flog. | An einem Baum am Waldrand | lehnte  
ein hoher Krieger: | in den Mantel gehüllt, | die Arme über der  
Brust gekreuzt, | das buschige Auge | regungslos hinauserichtet |  
auf einen fernen Punkt. | Tief dort | im Dämmer der Mondnacht |  
funkelte König Karls Heerlager. | Eine Welt war in Aufruhr |  
im Herzen dieses einsamen Mannes; | eine Welt voll Schmerz  
und Weh. | Aber keinen Seufzer fand er | in dieser entscheidenden  
Nacht; | die Zähne biß er zusammen, | in keinem Laute | gab er  
seinem Herzweh Luft. | Starr und kalt stand er, | eine Eiche unter  
Eichen. (10)

#### GAELIC

##### LOWER GRADE

Tuesday, 29th March—10 A.M. to 12.30 P.M.

*The value attached to each question is shown in brackets  
after the question.*

**N.B.—Write legibly and neatly. Marks will  
be deducted for bad writing and spelling.**

1. Translate into English:—

Chuir latha Chuil-lodair—latha na dunach do na  
Gàidhil—na Rìoghalaich fo 'n choille. Na thàrr bhàrr na  
h-àraich an latha sin, b'eudar dhaibh ionadan falaich  
an dùthcha fhéin a thoirt orra, a sheachnadh  
anacneasdachd an airm-dheirg. Mar bu dligeach thug  
Ailein Bàn a dhùthaich fhéin fo a cheann. Cha robh  
frith-rathad no cluain air nach robh e eòlach. Thug e  
fada 'n a fhear-cùirn, ré an latha an còs-falaich, agus a'  
teàrnadh gu srath 's an fheasgar gu a thuath dhìlis fhéin.  
“Na h-uairean,” ars esan, “a thàrrainn dol gu iomall na

coille air feadh nan creag aillteach uaignidh ud, chluinninn am balbhachd na gaoithe, a bha le fàs-fhuaim a' luasgadh na giuthsaich fotham, na saighdearan ag comhfhreagairt a chéile agus an tòir 'g a cur. Is tric a chuala mi sgal an cléibh ag cur mac-talla bho chreig gu creig, agus a chunnaic mi 's an loch shìos fotham faileas na lasrach a tighean mo chuid dhaoine is iad 'n am buidealaich theine. Le nàire is le feirg is tric a thàinig fotham ruith leis a' bhruthaich gun bhall-airm, agus mi fhéin a liubhairt an làmhan mo nàimhdean; ach bidh taobh aig duine r'a bheatha, agus chuireadh tartar na h-earbaig clisgeadh orm, agus thillinn air ais do mo chòs."

(20)

2. Translate into English:—

An Grèasaich

Gu ma slàn do an ghriasaich, gille dèanadach grunn-dail,  
Rinn dhomh caisbheart tha dìonach, 's cha dèan an t-sian  
orra drùidheadh;

A h-uile ceum bhios mi dèanamh gum bi mi leudachadh  
cliù dha:

Cho fad' 's is bèò mi air thalamh, is leis mo bheannachd  
's mo dhùrachd—

An gille gasd'.

Is ann agam fhìn a tha an griasaich a tha gnìomhach  
le làmhan,

Is e 'g cur nam brògan r'a chéile, 's ann aige féin a tha  
an t-achd orr';

Le mhinidh crom air dheagh ghleusadh, 's a roinn cho  
geura ri claidheamh,

Is chan 'eil toll tha e dèanamh nach 'eil e lìonadh le  
sreangan

Nach tig air ais.

Gheibh thu an gille 'n a shuidhe gu h-aoibheil cridheil,  
's e 'g òran,

E 'g cur nam bonn ris na cip, no ri obair dhripeil le  
mheoirean;

Seall do chas dha: 's an tiotan gun téid am fiogair ri  
t'òrdaig,

Is 'n uair théid Murchadh an tarruing cha bhi thu fada  
gun bhrògan—

Is bidh orra tlachd.

(20)

3. Translate into Gaelic:—

It was a delightful evening—still, breathless, clear—  
as we swept slowly across the broad breast of Loch Maree;

and the red light of the sinking sun fell on many a sweet wild recess amid the islands purple with heath, and overhung by the birch and mountain ash; or slanted along the glades of the ancient forest; or lighted up the pale stony faces of the tall pyramidal hills. A boat bearing a wedding party was crossing the lake to the white house on the opposite side, and a piper, stationed in the bows, was discoursing sweet music, that, softened by distance, and caught up by the echoes of the rocks, resembled no strain I had ever heard from the bagpipe before. Even the boatmen rested on their oars, and I had just enough of Gaelic to know that they were remarking how very beautiful it was. "I wish," said my comrade, "you understood these men; they have a great many curious stories about the loch, that I am sure you would like. See you that large island? It is Island Maree." (20)

Loch Maree = *Loch Ma-Ruibhe*. Pyramidal = *corrach*.

4. Write in Gaelic a continuous story (about twice as long as the answer to Question 3) basing it on the following summary, and completing it in your own way.

*The Sheep and the Thorns.*

A peasant, resting from his work, sits with his little son on a stone by the roadside—road not very broad—thorn-bushes on both sides—shepherd drives his flock past—pointed thorns tear large pieces of wool from the sheep—boy complains to father that the thorns hurt the poor animals—father promises to cut down bushes with an axe—boy satisfied. Birds arrive, thrushes, blackbirds, finches, larks—pick wool from thorns—boy inquires reason for this—father explains wool used for building soft nests. Boy replies. (20)

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GAELIC

HIGHER GRADE—(FIRST PAPER)

Tuesday, 29th March—10 A.M. to 12 NOON

*The value attached to each question is shown in brackets after the question.*

**N.B.—Write legibly and neatly. Marks will be deducted for bad writing.**



## 1. Translate into English:—

Bha a' ghaoth ag èaladh bog blàth o dheas, agus tlàths gréine a' plathadh gu tlusail air gach taobh. Chite a' ghaoir-theas a' ruith 'n a deann chritheannach thar guirme nam blàr is thar uachdar nan loch air bearnaibh ceathach fàire nam beann. Bha loch a' Bhogha Mhóir le a bhroilleach sèimh bòidheach 'na shìneadh gu faoil farsuing f'ar comhair. Tha a chruth agus a shnuadh ag éirigh an dràsd mu choinne sgàthan mo mhac-meamna. Tha mi faicinn a chinn aosda le a chearcal bàn mu mhullach a' foiseachadh gu tosdach ri buinne fhìorghlain Bheul an Àtha, cùirnichte gu dìomhair fasnach le tiugh mheanglan nan craobh. Agus nach lurach a sheallas riomball geal Thràigh Langa mar sgrìob òir air a tarruing sìos cùl a chinn, agus Bealach Dearg 'n a éideadh sgàrlaid ròghail a' fiadhachadh an fhir-thuruis gu crìochaibh bòidheach Chille Chomain! Tha thusa, a loch chaoimh fhasgaich, gun chaochladh ad mhaise, sgiamhach agus taitneach do shùil a' mharaiche, mar a bha thu an laithibh cian na Féinne. Mu dheireadh chunnaic sinn gob biorach na Birlinn a' tighinn am fradharc fo ghualainn ghlais Chnoc na Faire, agus cha b' fhada gus an robh a sròn an taice na lamraig big shìos o 'n Fhàrdaich Fhroinich. An tiota bha sinn shìos, agus bu cheutach an sùrd a bha air a' Cholach agus air an Ìleach, mu an robh an seanfhocal gun teagamh fìor, "nach toir muir no monadh an cuid o dhaoine sona."

(25)

## 2. Translate into English:—

*Duanag do 'n Ghaoith.*

O, is taitneach 's an t-samhradh do mhall osag réidh,  
 Ag iadhadh mu 'n bhearradh 's a' sanas mu 'n fheur;  
 Is 'n uair thig thu troimh an àilean 's an cinnich na  
 blàthan,

Mar chungaidhean slàinte bidh an t-àileadh fo d' sgéith.

Gur binne do chaithreim na aithris nan teud,

Air achadh an eòrna is e òg anns an déis;

Is e 'g aomadh fo t' anail 'n a ghlinn is 'n a mheallan,

As luainiche faileas is lannir ri gréin.

An aimsir an fhoghair b'e roghainn gach gnìomh

Le gunna is le gadhar bhi faghaid nam fiadh;

Is bhi siubhal 'nad chòmhdhail feadh ghlaicean is  
 chòmhnard,

Is liath-cheò do chòmhdach gu h-òirdhearc mu 'n t-sliabh.

An uair thuiteas an oidhche air beinn agus cluain,  
Is bhios duine agus ainmhidh gu balbh ann an suain,  
Bidh tusa le d' chlàrsaich 's na doireachan fàsaid,  
Is gun fhreagradh dod mhànrán ach gàirich a' chuain.

An uair thig thu le gaillinn bho bhealach nan àrd,  
Bidh t' onfhadh 's na gleannan mar fharum a' bhlàir;  
Bidh an giuthas 's an darag 'g an lùbadh ri talamh,  
Is tu rùsgadh a' bharrach mar chathadh bho 'm bàrr.

(30)

3.—(a) Translate into English:—

Agus an tan adubhairt Cormac na briathra sin, táinig d' a phuball féin is e tuirseach dobrónach, agus an tan do shuidh, tugadh soitheach ubhall chuige, is gabhais ag a roinn ar a mhuinntir, agus is eadh do ráidh: “A mhuinntir ionmhain,” ar sé, “ní roinnfead-sa ubhla oraibh ó 'n uair-se amach go bráth.” “A thighearna ionmhain,” ar a mhuinntir, “tugais orainn-ne bheith dobrónach tuirseach, is fá minic leat droch-fháistine do dhéanamh duit féin.” “Créad sin? a mhuinntir chridhe,” ar Cormac, “oir is beag an t-iongnadh, gion go<sup>1</sup> dtugainn-se ubhla as mo láimh féin daoibh, go mbiodh neach éigin oile im fharradh do shínfeadh ubhla dhaoibh.” Iar sin do iarr Cormac an duine cráibhtheach Maonach do thabhairt chuige, go ndéarnadh a fhaoisidin is a thiomna 'n-a láthair; is do chaith Corp Críost 'n-a fhiadhnaise, is do dhiúlt sé do 'n tsaoghal do láthair<sup>2</sup> Mhaonaigh.

(<sup>1</sup>) *gion go*, although . . . not.

(<sup>2</sup>) *do láthair*, in presence of.

(b) Parse *gabhais*, *roinnfead*, *tugais*. (20)

## GAELIC

### HIGHER GRADE—(SECOND PAPER)

Tuesday, 29th March—2.15 P.M. to 4.15 P.M.

*The value attached to each question is shown in brackets after the question.*

**N.B.—Write legibly and neatly. Marks will be deducted for bad writing and spelling.**

## SECTION I.

*All the questions in this Section should be attempted.*

1. Write an essay, in Gaelic, on *one* of the following subjects :—

- (a) Aobharan anfhois na dùthcha aig an àm so.  
 (b) Ruigidh each mall muileann. (30)

2. Turn into idiomatic Gaelic :—

(a) There are few who would adopt a policy so hazardous.

(b) I was in danger of falling off the stack had I not gripped the ladder.

(c) He was quite indifferent as to what people said of him, provided that he was satisfied that he was in the right.

(d) We crossed the Minch from Tarbert in Harris to Kyle of Loch Alsh; then we sailed to Islay, and thence to Kintyre. (10)

3. Translate into English :—

- (a) Ge toil leam Cailein Ghlinn Iubhair,  
 B' fheàrr leam gum b' iubar is nach b' fhearna.  
 (b) Ma tha thusa 'nad fhear ealaidh,  
 Cluinneamaid annas do làimhe.  
 (c) Co a nis a bhuaileas an dallag  
 Air Raghnaill òg Mac Mhic Ailein?  
 (d) Fuath leam bhi fada ri port,  
 Fuath leam bhi gu h-olc mu'n bhiadh. (10)

## SECTION II.

*THREE questions should be attempted from this Section.*

*The answers may be either in Gaelic or in English.*

4. Give the Gaelic words formed from the following Latin words :—*benedictio, planta, consecro, discipulus, pax, regula, sagitta, auctor, fustus, virtus.* (5)

5. Mention any poems you know which deal with the mountains and name their authors. Give a short account of one of them. (5)

6. Describe the metres of the following :—

(a) Triallaidh mi le m' dhunaig ullamh  
Gu rìgh Ghàidheal,  
Fear aig am bi am baile dùmhail.  
Sona saoibhir.

(b) Gur mairg a bheir géill  
Do 'n t-saoghal gu léir :  
Is tric a chaochail e cheum gàbhaidh. (5)

7. Give a short account of the work of Neil MacLeod  
or of Donald Mackechnie. (5)

8. What parts of Scotland have been affected by  
Norse influence? Mention in a general way how that  
influence has been manifested. (5)

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## GAELIC

### HIGHER GRADE—(SECOND PAPER)

Tuesday, 29th March—1.30 P.M. to 2 P.M.

*This paper must not be seen by any Candidate.*

*To be read out by the Teacher at 1.30 P.M. in the  
presence of the Supervising Officer.*

**To be written by the Candidates on the  
separate sheets provided, which must be  
collected before the Second Gaelic Paper  
is distributed.**

### DIRECTIONS FOR TEACHER.

1. *Read the passage aloud distinctly and deliberately, but not slowly, the object being to bring out the meaning of the whole as clearly as possible.*
2. *Inform the candidates that they may not ask for the repetition of any word or phrase.*
3. *Dictate the passage slowly, repeating each group of words (as indicated by vertical lines) twice over, and pronouncing every word very distinctly. The punctuation should be indicated.*

4. *After an interval of five minutes read the text over again in the same manner as on the first occasion, but do not on any account repeat separate words at the request of individual candidates.*

### Dictation.

Araon air suidheachadh a luchd-dùthcha | an coitchiontas, | is air an cor aimbeairteach, | fhuair e sàr-fhiosrachadh | troimh lìonmhoireachd nan turusan | air an deachaidh e | air chuairt 'n am measg; | ghabh e bàidh spéiseil 'n an leas, | is rinn an camadh 's an chrannchur aca | iomadh latha iomaguin d' a spiorad, | mar a choisinn e d' a bhodhaig | iomadh latha allabain | air muir agus air tìr, | nì air an robh cuid againn fiadhnaiseach | uair is uair. | Ach is geal còir an fhìrinn aithris, | gur ann air los | a chomh-fhaireachduinn r' an cor | agus le còmh-nadh | a shaothairean féin-àicheil as an leth, | a chaidh mór àireamh a chur air chois | de na n-eaglaisean is de na sgoilean | air fearann na Gàidhealtachd | bho bhliadhna an Dealachaidh. (10)

## SPANISH

### LOWER GRADE

Wednesday, 30th March—10 A.M. to 12.30 P.M.

*The value attached to each question is shown in brackets after the question.*

**N.B.—Write legibly and neatly. Marks will be deducted for bad writing.**

1. Translate into English:—

(a) El comercio marítimo de los peruanos y las conquistas de los Incas habían hecho conocer a los remotos salvajes del Darién, que hacia el sur existía una gran nación civilizada y opulenta; y bastó que estos vagos rumores llegaran a oídos de los españoles, recién establecidos allí, para que los atrevidos aventureros se dirigieran en busca de tan poderoso imperio. Eran tan pocos que apenas se les hubiera creído capaces de acometer un castillo medianamente fortificado; pero poseían aquel valor prodigioso que Dios concede a

ciertos hombres, a quicnes elige para cambiar la faz de las naciones. Habían sido conducidos tan lejos de su patria por el espíritu emprendedor del siglo diez y seis y por la voluntad enérgica de la Iberia, que quería llevar a entrambas Indias su dominación y su cultura. Aguijoneábanlos<sup>(1)</sup> para descubrir nuevos países y para sojuzgar<sup>(2)</sup> sus habitantes la pasión de las riquezas, el amor a las aventuras, y el entusiasmo religioso. (20)

(1) incited them.

(2) subjugate.

(b) A la mañana siguiente Doña Antonia no pudo acompañar a paseo a su hija Lucía; pero, como ésta ya tenía concertado el paseo con su amiga, se decidió que su tío las acompañase.

La amiga de Lucía vivía en la casa inmediata. Un muro separaba los patios de una casa y otra. A la hora convenida, en punto de las nueve y media, Lucía, pronta ya para salir y con su tío al lado, gritó desde el patio, al pie del muro:

— Clara, ¿estás ya lista?

No se hizo aguardar la contestación. Oyóse primero la voz de una criada que decía:

— Señorita, Doña Lucía está llamando a su merced.

Un momento más tarde sonó en el patio contiguo una voz argentina y simpática, que respondía:

— Allá voy; sal a la calle; ¿para qué he de entrar en tu casa?

Salieron D. Fadrique y Doña Lucía, y hallaron ya a Doña Clara en la puerta.

La pequeña ciudad está por todas partes circundada de huertas. Muchas sendas las cortan en diversas direcciones, y en algunas de ellas hay un arroyo cristalino a cada lado. Todas gozan, en primavera, verano y otoño, de abundante sombra, merced a los árboles de todo género que crecen en las huertas.

Tales eran los sitios por donde paseaba D. Fadrique con las dos bonitas muchachas. (24)

## 2. Translate into Spanish:—

After leaving her uncle's house Jane walked towards the river and stopped in front of a large hotel near the Old Bridge. Here she took out of her bag a card and a pencil, and wrote on the card the following words:—  
 "Could I see you this evening for a few minutes, as I am leaving to-morrow for Madrid?" With this note in her hand she went up to the porter, who was standing at

the entrance, and asked if Mr. X. was at home. The porter replied that he had gone out about twenty minutes before; so Jane asked that the note might be given to him on his return. (20)

3. Translate into Spanish :—

- (1) Whose boots are these? They are not yours.
- (2) It is very hot and dusty here in summer.
- (3) They are asking four hundred pesetas for this picture.
- (4) Bring me the one you like best.
- (5) Give it to him when you see him.
- (6) I told the servant to light the fire.
- (7) The money will be paid in a few days.
- (8) The boy put the books on the table and went away. (16)

## SPANISH

HIGHER GRADE—(FIRST PAPER)

Wednesday, 30th March—10 A.M. to 12 NOON

*The value attached to each question is shown in brackets after the question.*

**N.B.—Write legibly and neatly. Marks will be deducted for bad writing.**

Translate, with due attention to English form and expression :—

1. Cuando los bravos castellanos del siglo XI, superadas las barreras de Somosierra y Guadarrama, bajaron como un torrente sobre el pingüe reino de Toledo, dieron el nombre de la patria que atrás dejaban, a la conquista que a sus ojos se ofrecía. Cruzaron llanos, franquearon montes, ganaron ciudades, pasaron el Tajo y el Guadiana; y todo el territorio que anduvieron en siglo y medio de victoriosa marcha, Castilla Nueva lo llamaron, hasta que desde lo alto de otras cumbres se les apareció la bella Andalucía. El tiempo ha sancionado la inspiración del amor patrio; y en las grandiosas cordilleras que al norte, al sur y al este encierran aquel inmenso valle, se han visto trazados los linderos de la provincia, a la cual su posición céntrica



debía vincular el imperio sobre las restantes. Al norte levanta Somosierra sus nevados picos, y Guadarrama dilata al noroeste el escarpado muro que divide las dos Castillas; a lo largo de su límite oriental ensánchase las sierras de Molina y Cuenca; un ramal de Sierra Morena cierra por el sur la entrada a los vergeles deliciosos de la Bética. Más accesible, aunque no del todo llana, se presenta Castilla la Nueva por occidente a la Extremadura, como pidiéndole paso para sus dos ríos principales, el Tajo y el Guadiana, que majestuosos y crecidos van a desaguar en el océano sus corrientes.

(30)

2.

## A VALENCIA.

Bajo la sombra de tus palmeras,  
Entre las frondas de tus jardines,  
Vagan las auras más placenteras,  
Brotó la esencia de los jazmines.

Cielo sin nubes,

Vega de flores,

¿Quién al mirarte, quién no te adora,  
Cuando del alba los resplandores  
Con rayos de oro tus campos dora?

¡Patria adorada!

Yo no te olvido,

Y hoy que el invierno mi frente inclina,  
Recuerdo siempre donde he nacido,  
Como recuerda la golondrina

Su amante nido.

(15)

3. *Pepe.* ¡Luisita!

*Luisa.* ¡Chist! No digas nada, no levantes la voz, no te muevas. . . . Tenemos que hablar; siéntate. Ya supondrás por qué te he llamado de esta manera. . . .

*Pepe.* Sí; supongo . . .

*Luisa.* No supones, lo sabes. . . . Sabes que mi padre y el tuyo conferencian en este momento.

*Pepe.* ¿En este momento?

*Luisa.* Sí. Se han encerrado en el despacho. Y era urgente, preciso, que nosotros nos viéramos antes a solas, con toda libertad, para ponernos de acuerdo. . . . Nuestros padres deciden allí; pretenden decidir de nuestro porvenir. . . . Ya estás enterado; quieren casarnos.

*Pepe.* Sí; papá siempre me estaba diciendo: “Las bodas deben hacerse en familia; hay más probabilidades de acertar. . . . En nuestra familia hay

excelentes muchachas; debes fijarte en una de tus primas." Pero la verdad, como sois veintitantas en la familia. . . . era imposible fijarse . . .

*Luisa.* Papá estaba siempre con la misma canción; pero como el único primo casadero de la familia eres tú, cuando papá me decía: "Debes casarte con uno de tus primos," ya sabía yo que el primo eras tú. Comprendes que hay mucha diferencia de poder escoger entre veintitantas a no tener dónde escoger. . . . (20)

## SPANISH

### HIGHER GRADE—(SECOND PAPER)

Wednesday, 30th March—2.15 P.M. to 4.15 P.M.

*The value attached to each question is shown in brackets after the question.*

**N.B.—Write legibly and neatly. Marks will be deducted for bad writing.**

1. Translate into Spanish:—

Although Thomas Newcome had gone back to India in search of more money, finding that he could not live upon his income at home, he was nevertheless rather a wealthy man. "A thousand pounds a year more," he thought, "will enable us to live very comfortably at home, and I can give Clive an allowance when he marries. If he gets a wife with some money, they may have every enjoyment of life; and, as for his pictures, he can paint just as few or as many of them as he likes." Newcome did not seem seriously to believe that his son would live by painting pictures, but regarded Clive merely as a young man who chose to amuse himself with painting. As a proof that Clive did intend to practise his profession, and to live by it too, he took four sketches to a dealer in the Haymarket and sold them for seven shillings and sixpence each. His delight at receiving thirty shillings from the shopkeeper was very great. (35)

2. Translate into Spanish:—

(1) On going out of the house I met my friend.

(2) I heard her singing and playing on the piano.

(3) The lake is two miles long and more than half a mile broad.

(4) Anybody could do that.

(5) What has become of your younger brother?

(6) I have not heard of him for more than a year.

(15)

3. Write in Spanish a continuous story (about one and a half times as long as the answer to Question 1) based on the following summary:—

Customer in book-shop—asked shop-boy to show him various books—selected one—asked price—one dollar—too dear—offered less—boy refused—“price fixed by proprietor”—asked for proprietor—busy in office—customer insisted on boy bringing him out—complained—book too dear—could be had elsewhere cheaper—lowest price—bookseller impatient—price one dollar and a quarter—customer astonished—boy asked only one dollar—continued to bargain—price now one dollar and a half—said bookseller—must charge for time wasted—a quarter of a dollar for each five minutes—(*conclude the story in your own words*). (25)

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## SPANISH

### HIGHER GRADE—(SECOND PAPER)

Wednesday, 30th March—1.30 P.M. to 2 P.M.

*This paper must not be seen by any Candidate.*

*To be read out by the Teacher at 1.30 P.M. in the presence of the Supervising Officer.*

**To be written by the Candidates on the separate sheets provided, which must be collected before the Second Spanish Paper is distributed.**

### DIRECTIONS FOR TEACHER.

1. *Read the passage aloud distinctly and deliberately, but not slowly, the object being to bring out the meaning of the whole as clearly as possible.*
2. *Inform the candidates that they may not ask for the repetition of any word or phrase.*

3. Dictate the passage slowly, repeating each group of words (as indicated by vertical lines) twice over, and pronouncing every word very distinctly. The punctuation should be indicated thus :—(.) ‘ punto,’ (,) ‘ coma,’ (;) ‘ punto y coma.’
4. After an interval of five minutes read the text over again in the same manner as on the first occasion, but do not on any account repeat separate words at the request of individual candidates.

### LECTURE

Bilbao es población | de aspecto en extremo simpático. | Sus calles anchas, | llenas de tiendas, | signo del gran desarrollo | que allí tiene el comercio, | su larga ría | poblada de barcos | procedentes de lejanos puertos, | sus modernos edificios, | y sus grandes fundiciones, | casi únicas en España, | hacen que la capital vizcaína | sea uno de los mejores puntos de España.

Esta población es denominada la ciudad del hierro, | y es verdad | que nunca con mayor motivo | ha sido aplicado sobrenombre alguno. | Allí el fuerte metal | es el amo y señor de extensa comarca. | Para extraerlo de la tierra | hay muchas sociedades mineras; | para trabajarlo y darle forma conveniente, | multitud de fábricas tienen asiento | en la margen izquierda de la ría, | y para transportarlo a todas partes, | millares de barcos están anclados | a lo largo de sus muelles. | (10)

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### MATHEMATICS

#### LOWER GRADE—(FIRST PAPER)

Tuesday, 22nd March—10 A.M. to 12 NOON

*Before attempting to answer any question, Candidates should read the whole of it very carefully, since time is often lost through misapprehension as to what is really required.*

*All the figures should be neatly drawn. All the steps of the proofs must be given. Preference will be given to proofs which depend on first principles, and in all cases it should be clearly shown on what assumptions the demonstrations are based.*

*The value attached to each question is shown in brackets after the question. Marks will be deducted for careless or badly arranged work.*

## SECTION I.

*All the questions in this Section should be attempted.*

1. In a triangle ABC the side AB is greater than the side AC. Prove that the angle ACB is greater than the angle ABC. (11)

2. State and prove a construction for making a rectangle equal in area to a given rectangle, and with a side of given length. (12)

3. Prove that a tangent to a circle is at right angles to the radius through the point of contact. (11)

4. Prove that the bisector of the interior angle BAC of a triangle ABC divides the side BC in the ratio of the sides AB, AC. (12)

## SECTION II.

*Only THREE questions should be attempted from this Section. The propositions in Section I (above) on which certain of these deductions depend are indicated in brackets.*

5. A is the greatest and C is the least angle of the triangle ABC. If O is the centre of the inscribed circle, prove that of the lengths OA, OB, and OC, the least is OA, and the greatest is OC. (Converse of Section I, 1.) (18)

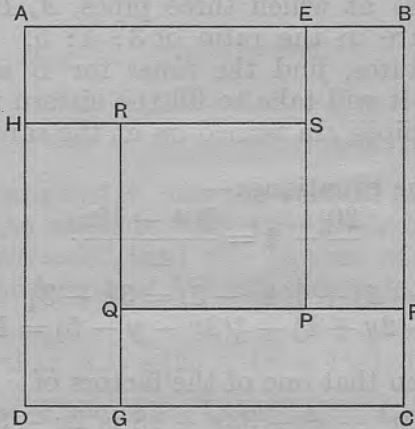
6. The bisector of the interior angle BAC of a triangle meets the side BC in D. Prove that DA is divided by the bisector of the angle ABC in the ratio of the side BC to the sum of the sides AB, AC. (Section I, 4.) (18)

7. A triangle ABC is inscribed in a circle, and the tangent at C to the circle is parallel to the bisector of the angle ABC. Prove that the angle ABC is double the angle BAC. (18)

8. A, B are two points on a straight line OAB. Prove that the length of the tangent from O to *any* circle through A and B is constant. Hence, or otherwise, show how to draw a circle through A and B to touch a given straight line OX. (18)

9. (See figure, which need not be copied in your examination book.)

ABCD is a square. The lengths AE, BF, CG, and DH are equal; EP, GR are drawn parallel to AD, and FQ, HS parallel to AB. Prove that PQRS is a square, and that it is the square on the straight line equal to the difference of the straight lines AE, EB. (18)




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## MATHEMATICS

### LOWER GRADE—(SECOND PAPER)

Tuesday, 22nd March—1 P.M. to 3.30 P.M.

*Before attempting to answer any question, candidates should read the whole of it very carefully, since time is often lost through misapprehension as to what is really required.*

*Square-ruled paper and four-place logarithmic tables are provided.*

*All the working must be legible and shown in its proper position in the answer, and the different steps should be shortly indicated in words.*

*The value attached to each question is shown in brackets after the question. Marks will be deducted for careless or badly arranged work.*

## SECTION I.

All the questions in this Section should be attempted.

1. Find—by expressing them approximately as decimals or otherwise—which is greatest and which is least of the following three fractions:—

$$\frac{50}{63}, \frac{58}{71}, \frac{497}{624}. \quad (9)$$

2. The rates at which three pipes,  $A$ ,  $B$ , and  $C$ , can fill a cistern are in the ratio of 3: 4: 5. If  $A$  can fill it in  $10\frac{1}{2}$  minutes, find the times for  $B$  and  $C$ . Find also how long it will take to fill the cistern if it is empty and all three pipes are turned on at the same time. (16)

3. Solve the equations:—

$$(a) \quad \frac{20}{x} - 4 = \frac{104 - 10x}{4x^2}.$$

$$(b) \quad \left. \begin{aligned} \frac{2}{3}(3x - 5) + \frac{3}{4}(4x - 5) &= 3x - 3\frac{3}{4} \\ \frac{3}{4}(x - 2y + 4) + \frac{4}{5}(2x - y - 5) &= 1 \end{aligned} \right\} \quad (15)$$

4. (a) Given that one of the factors of

$$10x^3 - x^2 - 33x + 18 \text{ is } 2x - 3,$$

factorise this expression fully.

(b) Express as a fraction in its lowest terms—

$$\begin{aligned} \frac{a^2 - 4x^2}{4a^2 - x^2} \times \frac{x(2a - x) + a(2a + x) - (4a^2 - x^2)}{x(a - 2x) + a(a + 2x) - (a^2 - 4x^2)} \\ \div \frac{(3ax - 2a^2)(a + 2x)}{(2x^2 - 3ax)(2a + x)}. \end{aligned} \quad (15)$$

## SECTION II.

Only THREE questions should be attempted from this Section.

5. Copy the following table in your examination book, and complete it by filling in the values of  $\cos x$  correct to the nearest second decimal place:—

$x$	=	$0^\circ$	$10^\circ$	$20^\circ$	$30^\circ$	$40^\circ$	$50^\circ$	$60^\circ$	$70^\circ$	$80^\circ$	$90^\circ$
$\cos x$	=										

Graph these values, taking one inch horizontally to represent  $10^\circ$ , and ten inches vertically to represent unity.

Join the points by means of a smooth curve. You may use pencil for this purpose.

Rule the straight line that would enable you to find from your graph the angle whose cosine is 0.6. (15)

6. If  $\frac{a}{b} = \frac{x}{y}$ , prove that each of these fractions is equal to  $\frac{a+x}{b+y}$ .

Prove also that

$$\frac{3a^2 + 5ab + 2b^2}{3a^2 - 5ab + 2b^2} = \frac{3x^2 + 5xy + 2y^2}{3x^2 - 5xy + 2y^2} \quad (15)$$

7. The triangle  $ABC$  has the vertical angle  $A$  obtuse, and  $AP$  is the altitude. If  $AB=2.5''$ ,  $BC=4.5''$ , and the angle  $ABC=45^\circ$ , find the lengths of  $AP$  and  $BP$ . Hence find the length of  $PC$  and the angle  $ACP$ . (15)

8. Given that  $S = \frac{n}{2}\{2a + (n-1)d\}$ , find a formula for  $d$  in terms of the other letters.

If  $S=15a$ , and  $n=10$ , find the value of  $d$  in terms of  $a$ . (15)

9. The lengths of two railway routes between two towns are respectively 95 and 102 miles. If the average speed of a train on the longer route is  $3\frac{1}{2}$  miles per hour greater than on the shorter route, and the time taken for the journeys is the same, find the average speeds. (15)

## MATHEMATICS

### HIGHER GRADE—(FIRST PAPER)

Tuesday, 22nd March—10 A.M. to 12 NOON

*Before attempting to answer any question, Candidates should read the whole of it very carefully, since time is often lost through misapprehension as to what is really required.*

*Four-place logarithmic tables are provided.*



*All the figures should be neatly drawn. All the steps of the proofs must be given. Preference will be given to proofs which depend on first principles, and in all cases it should be clearly shown on what assumptions the demonstrations are based.*

*The value attached to each question is shown in brackets after the question. Marks will be deducted for careless or badly arranged work.*

### SECTION I.

*All the questions in this Section should be attempted.*

1. State and prove the construction for inscribing a circle in a triangle. (11)

2. Prove that the areas of similar triangles are to each other as the areas of squares described on their corresponding sides. (11)

3. Prove that if a straight line is perpendicular to each of two straight lines at their point of intersection, it is perpendicular to the plane which contains the lines. (13)

4. Prove geometrically, for the case in which  $A$  is greater than  $B$  and each of these angles is acute, the ordinary formula for  $\cos(A - B)$ . (11)

### SECTION II.

*Only THREE questions should be attempted from this Section. The propositions in Section I (above) on which certain of these deductions depend are indicated in brackets.*

5. Prove that if  $O$  is the centre of the circle inscribed in the triangle  $ABC$ , the straight lines  $OA$ ,  $OB$ , and  $OC$  when produced become the altitudes of the triangle whose vertices are the centres of the three escribed circles. (Section I, 1.) (18)

6.  $ABC$  is a triangle whose angle at  $B$  is greater than the angle at  $C$ . Through  $B$  draw a straight line  $BD$  making the angle  $ABD$  equal to the angle at  $C$  and cutting the base internally in the point  $D$ . Prove that the square on  $BD$  is to the square on  $BC$  as  $AD$  is to  $AC$ . (Section I, 2.) (18)

7. The vertical angles at  $A$  of a tetrahedron  $ABCD$  are right angles. A plane  $PQR$  cuts the edges where

$AP = 3''$ ,  $AQ = AR = 5''$ . Find the number of degrees in the angle  $QPR$ . (18)

8. The base  $AB$  of a triangle is given in position and magnitude, and its angle  $C$  is given in magnitude. From the greater of the two sides  $CA$ ,  $CB$  a part  $CP$  is cut off equal to the less. Prove that the locus of  $P$  as  $C$  moves in a plane is composed of two equal arcs of circles. (18)

9. Assuming that the three altitudes  $AD$ ,  $BE$ ,  $CF$  of a triangle  $ABC$  meet in a point  $P$ , prove that—

- (i)  $AE = c \cos A$ ,
- (ii)  $AP = a \cot A$ ,
- (iii)  $EF = a \cos A$ . (18)

## MATHEMATICS

### HIGHER GRADE—(SECOND PAPER)

Tuesday, 22nd March—1 P.M. to 3.30 P.M.

*Before attempting to answer any question, Candidates should read the whole of it very carefully, since time is often lost through misapprehension as to what is really required.*

*Square-ruled paper and four-place logarithmic tables are provided.*

*All the working must be legible and shown in its proper position in the answer, and the different steps should be shortly indicated in words.*

*The value attached to each question is shown in brackets after the question. Marks will be deducted for careless or badly arranged work.*

### SECTION I.

*All the questions in this Section should be attempted.*

1. The area of a river basin is 4,500 square miles, and the rainfall is 29.2 inches per year. If half the rain is evaporated and the rest flows to the sea, find the average number of gallons per hour which flow into the sea, there being 6.23 gallons in a cubic foot. Take 1 year = 365 days. (11)

2. (a) Factorise fully—

$$a^6 + pa^4 - q^4a^2 - pq^4$$

(b) Reduce to its simplest form—

$$\frac{\frac{1}{a^3} + \frac{1}{b^3}}{\frac{1}{a^2} + \frac{1}{ab} + \frac{1}{b^2}} \div \frac{\frac{b^2}{a^2} - \frac{b}{a} + 1}{\frac{b^3}{a^3} - 1} \quad (11)$$

3. (a) Solve the equations—

$$\left. \begin{aligned} x + 2y &= 4 \\ 4y - z &= 7 \\ 4x - 2y + 3z &= 0 \end{aligned} \right\}$$

(b) One of the roots of the equation

$$x^3 + x^2 - 24x + 16 = 0$$

is a positive integer. Find this root, and the other two roots correct to the second decimal place. (11)

4. Prove that—

(a) in any triangle

$$b \cos C + c \cos B = a;$$

and deduce that, if B and C are two angles whose sum is less than two right angles,

$$\sin(B + C) = \sin B \cos C + \sin C \cos B.$$

$$(b) \sin 2A = \frac{2 \tan A}{1 + \tan^2 A}. \quad (11)$$

5. The sides of a triangle are  $a = 6''$ ,  $b = 7 \cdot 5''$ ,  $c = 9''$ . Calculate the area, and the number of degrees in the angle B. (11)

## SECTION II.

*Only THREE questions should be attempted from this Section.*

6. The following table gives the approximate values of  $\cos x$  and  $\sin x$  for values of  $x$  from  $x = 0^\circ$  to  $x = 90^\circ$  :—

$x =$	$0^\circ$	$10^\circ$	$20^\circ$	$30^\circ$	$40^\circ$	$50^\circ$	$60^\circ$	$70^\circ$	$80^\circ$	$90^\circ$
$\cos x =$	1.00	0.98	0.94	0.87	0.77	0.64	0.50	0.34	0.17	0.00
$\sin x =$	0.00	0.17	0.34	0.50	0.64	0.77	0.87	0.94	0.98	1.00

Draw the graph of  $2 \cos x - \sin x$ , and find from it for what value of  $x$  in this range  $\cos x = \frac{1}{2} \sin x$ .

Find by means of your tables how far below the  $x$  axis the graph must be when  $x = 120^\circ$ , and when  $x = 153^\circ 24'$ . (15)

7. What is meant by saying that four quantities are in proportion?

If four quantities  $a, b, c, d$  are in proportion, prove that the ratio of  $a$  to  $d$  is equal to the ratio of  $bc$  to  $d^2$ .

If  $a, b, c$ , and  $b, c, d$  are each in continued proportion, prove that  $a + b + c + d = \frac{a^4 - b^4}{a^2(a - b)}$ . (15)

8. Prove that if  $f(x)$  is a polynomial in  $x$

$$f(x) = (x - a)Q + f(a),$$

where  $Q$  is a polynomial in  $x$  of degree one less than  $f(x)$ .

If  $x^6 - 2x^5 + px^3 - qx + 2$  is divisible by both  $x + 1$  and  $x - 2$ , find the numerical values of  $p$  and  $q$ . (15)

9. Find the value of—

$$\frac{\sin(A - B)}{\cos A \cos B} + \frac{\sin(B - C)}{\cos B \cos C} + \frac{\sin(C - A)}{\cos C \cos A},$$

where  $A, B$ , and  $C$  are any angles.

Prove that if  $A, B, C$  are the angles of a triangle

$$\sin^2 \frac{A}{2} + \sin^2 \frac{B}{2} + \sin^2 \frac{C}{2} + 2 \sin \frac{A}{2} \sin \frac{B}{2} \sin \frac{C}{2} = 1. \quad (15)$$

10. By using your tables where necessary, find the angles between  $0^\circ$  and  $360^\circ$  satisfying the equation—

$$\cos x = 2 \cos(x + 10^\circ). \quad (15)$$

## ELEMENTARY ANALYSIS

### ADDITIONAL MATHEMATICAL SUBJECT

(Higher Grade)

Wednesday, 23rd March—10 a.m. to 12.30 p.m.

*Before attempting to answer any question, Candidates should read the whole of it very carefully, since time is often lost through misapprehension as to what is really required.*

Not more than FOUR questions should be attempted from Section I, and not more than THREE questions from Section II.

Square-ruled paper and four-place logarithmic tables are provided.

The value attached to each question is shown in brackets after the question. Marks will be deducted for careless or badly arranged work.

### SECTION I.

Not more than FOUR questions should be attempted from this Section.

1. Obtain the expansion of  $(1+x)^n$  in ascending powers of  $x$ , when  $n$  is a positive integer. Prove that coefficients of powers of  $x$  equidistant from the beginning and the end of the series are equal.

If  $C_0, C_1 \dots C_n$  denote the coefficients of  $x^0, x^1 \dots x^n$  in this expansion, prove that

$$C_0 C_1 + C_1 C_2 + \dots + C_{n-1} C_n = \frac{(2n)!}{(n-1)! (n+1)!} \quad (13)$$

2. Find the points where the graph of the function  $\frac{x^2 - 5x + 6}{2x - 3}$  cuts the axes, and the values of  $x$  corresponding to its turning values and to its infinities. Sketch the graph. (13)

3. Prove that  $(\cos \theta + i \sin \theta)(\cos \phi + i \sin \phi) = \cos(\theta + \phi) + i \sin(\theta + \phi)$ , and deduce De Moivre's theorem for a positive integral index.

If  $x^2 + x + 1 = 0$ , prove that  $x = \cos \frac{2\pi}{3} \pm i \sin \frac{2\pi}{3}$ .

Denoting these two values by  $\alpha$  and  $\beta$ , prove that  $\alpha = \beta^2$ ,  $\beta = \alpha^2$  and  $\alpha^3 = \beta^3 = 1$ . (13)

4. Show that

$$\begin{vmatrix} a & b & c \\ a' & b' & c' \\ a'' & b'' & c'' \end{vmatrix} + \begin{vmatrix} a & b & c \\ a' & b' & c' \\ a'' & b'' & c'' \end{vmatrix} = \begin{vmatrix} a + a & b & c \\ a' + a' & b' & c' \\ a'' + a'' & b'' & c'' \end{vmatrix}$$

Prove that

$$\begin{vmatrix} a - b - c & 2a & 2a \\ 2b & b - c - a & 2b \\ 2c & 2c & c - a - b \end{vmatrix} = (a + b + c)^3 \quad (13)$$

5. Evaluate :

$$\frac{d}{dx}(e^x \sin x); \frac{d}{dx}\left(\frac{x^4}{x^2-2}\right); \int \frac{(2x+1)dx}{x^2+1}; \int \frac{9dx}{(x-1)(x+2)^2}. \quad (13)$$

### SECTION II.

*Not more than THREE questions should be attempted from this Section.*

6. Find an expression for the sum of  $n$  terms of the series  $a + (a+b)r + (a+2b)r^2 + (a+3b)r^3 + \dots$

If  $x$  and  $xy$  are both proper fractions, prove that the sum to infinity of the series

$$1 + (1+x)y + (1+x+x^2)y^2 + (1+x+x^2+x^3)y^3 + \dots$$

is

$$\frac{1}{(1-y)(1-xy)}. \quad (16)$$

7. Prove that a series is convergent if after some fixed term the ratio of each term to the preceding is less than some quantity which is itself numerically less than unity.

Apply this test to prove the convergency of the series whose  $n$ th term is  $\frac{n^6}{n!}$ . After which term does the condition of convergency begin to be satisfied? (16)

8. If  $0 < \theta < \frac{\pi}{2}$ , prove that  $\sin \theta < \theta < \tan \theta$ , pointing out carefully any assumptions you make as to the relative lengths of lines in your figure. Deduce that

$$\lim_{\theta \rightarrow 0} \frac{\sin \theta}{\theta} = 1.$$

Hence, or otherwise, find the differential coefficient of  $\sin x$  with respect to  $x$ . (16)

9. The area enclosed by a curve, the axis of  $x$ , a fixed ordinate and a variable ordinate  $y$  is  $A$ . Prove that

$$\frac{dA}{dx} = y.$$

Show that the area enclosed by the curve  $y = a^x$ , the axis of  $x$  and any two ordinates is proportional to the difference between the ordinates. (16)

10. State the expansion of  $e^x$  in powers of  $x$ , and write down the series whose values are  $\frac{1}{e}$ ,  $e^2$  and  $\frac{1}{e^2}$ .

If  $n^3 \equiv a + bn + cn(n-1) + dn(n-1)(n-2)$ , find the numbers  $a$ ,  $b$ ,  $c$  and  $d$ , and show that

$$1 + \frac{2^3}{2!} + \frac{3^3}{3!} + \dots \text{ to } \infty = 5e. \quad (16)$$

## GEOMETRY

### ADDITIONAL MATHEMATICAL SUBJECT

(Higher Grade)

Wednesday, 30th March—10 A.M. to 12 NOON

*Before attempting to answer any question, Candidates should read the whole of it very carefully, since time is often lost through misapprehension as to what is really required.*

*Square-ruled paper is provided.*

*Marks will be deducted for careless or badly arranged work.*

Six questions should be attempted, of which **THREE** at least must be from Section I and **TWO** at least from Section II. The **SIXTH** question may be taken either from Section I or from Section II. All the questions are of equal value.

### SECTION I.

1. Prove that the necessary and sufficient condition that the three straight lines

$ax + by + c = 0$ ,  $a'x + b'y + c' = 0$ ,  $a''x + b''y + c'' = 0$   
be concurrent is

$$a(b'c'' - b''c') + b(c'a'' - c''a') + c(a'b'' - a''b') = 0.$$

Find the equations of the perpendicular bisectors of the sides of the triangle whose vertices are the points (1, 1), (3, 4) and (4, 3), and verify that they satisfy the above condition of concurrency.

2. Show that the equation

$$ax^2 + 2hxy + by^2 = 0$$

represents two straight lines, and that they are at right angles if  $a + b = 0$ .

Prove that one of the pair bisects one of the angles between the co-ordinate axes if  $(a + b)^2 = 4h^2$ .

3. State and prove the condition that the straight line  $y = mx + c$  touch the circle  $x^2 + y^2 = a^2$ , and show that, when this condition is satisfied, the abscissa of the point of contact is  $-ma^2/c$ .

Find the equations of the two tangents to  $x^2 + y^2 = 12$  parallel to the line  $3y = 4x$ .

4. Obtain the equation of the tangent at the point  $(x'y')$  to the parabola  $y^2 = 4ax$ .

If  $P$  is the point  $(x'y')$  on the parabola and if a straight line through  $P$  perpendicular to the tangent at  $P$  meet the axis of  $x$  in  $G$ , prove that  $PG^2 = y'^2 + 4a^2$ .

5. The co-ordinates of two points are  $(a \cos \theta, b \sin \theta)$  and  $(a \cos \phi, b \sin \phi)$ . Prove that—

(i) both points lie on the ellipse  $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ .

(ii) the equation of the straight line joining the points is

$$\frac{x}{a} \cos \frac{\theta + \phi}{2} + \frac{y}{b} \sin \frac{\theta + \phi}{2} = \cos \frac{\theta - \phi}{2}.$$

(iii) the co-ordinates of the point midway between them are

$$a \cos \frac{\theta + \phi}{2} \cos \frac{\theta - \phi}{2}, b \sin \frac{\theta + \phi}{2} \cos \frac{\theta - \phi}{2}.$$

Hence, or otherwise, show that the locus of the middle points of parallel chords of the ellipse is a straight line through the origin.

## SECTION II.

6. Show how to draw two pairs of common tangents to two circles that do not intersect.

If the direct common tangents meet at  $T$ , and if  $P$  and  $P'$  be the points of contact of one of them, prove that the circles are inverses with respect to the circle whose centre is  $T$  and the square of whose radius is  $TP \cdot TP'$ .



7. From a point  $P$  two tangents  $PT$  and  $PT'$  are drawn to a fixed circle. Prove that, if  $P$  moves along a straight line,  $TT'$  passes through a fixed point.

A circle is circumscribed to a triangle  $ABC$ , and  $P$  is the pole of  $AB$ .  $PD$ , parallel to  $AC$ , meets  $BC$  in  $D$ . Prove that  $AD = CD$ .

8. Three concurrent straight lines drawn through the vertices  $A$ ,  $B$  and  $C$  of a triangle meet the opposite sides in  $X$ ,  $Y$  and  $Z$  respectively. Prove that

$$\frac{BX}{XC} \cdot \frac{CY}{YA} \cdot \frac{AZ}{ZB} = 1.$$

If the circumference of a circle cut the sides  $BC$ ,  $CA$  and  $AB$  of a triangle in  $X$  and  $X'$ ,  $Y$  and  $Y'$ ,  $Z$  and  $Z'$  respectively, and if  $AX$ ,  $BY$  and  $CZ$  are concurrent, prove that  $AX'$ ,  $BY'$  and  $CZ'$  are also concurrent.

9. Prove that, if a pencil of four concurrent straight lines divide one transversal harmonically, it divides all transversals harmonically.

From a point  $O$  two tangents  $OP$  and  $OQ$  are drawn to a circle. A third tangent touches the circle at  $T$ , meets  $PQ$  produced in  $S$ , and meets  $OP$  and  $OQ$  in  $A$  and  $B$  respectively. Prove that  $SATB$  is a harmonic range.

10. What is meant by saying that two circles intersect orthogonally? Show how to construct—

- (i) A circle with given centre to cut a given circle orthogonally,
- (ii) A circle to cut three given circles orthogonally,
- (iii) A circle to pass through a given point and cut two given circles orthogonally.

## DYNAMICS

### ADDITIONAL MATHEMATICAL SUBJECT

(Higher Grade)

Monday, 28th March—2 P.M. to 4 P.M.

*Before attempting to answer any question, Candidates should read the whole of it very carefully, since time is often lost through misapprehension as to what is really required.*

*Square-ruled paper is provided.*

*The value attached to each question is shown in brackets after the question. Marks will be deducted for careless or badly arranged work.*

### SECTION I.

*All the questions in this Section should be attempted.*

1. State and prove the theorem known as the Parallelogram of Velocities.

A point is moving due North at a speed of 1 ft. per second. Suddenly, it changes its direction to due East, retaining the same speed. Find the change of velocity, illustrating your answer by a diagram. (16)

2. Define the moment of a force about a point, and state, in terms of moments, the condition of equilibrium of a lever.

A stiff uniform bar weighs 3 lb. per foot, and has a 45 lb. weight attached to one end. If it balance about a point 2 feet from that end, how long is the bar? (16)

3. A particle falls freely under the influence of gravity. If  $u$  and  $v$  be its velocities after it has fallen distances  $x$  and  $y$  respectively, prove that  $v^2 - u^2 = 2g(y - x)$ . What does this equation tell us about the relation between the kinetic and the potential energies of the particle at any moment?

A mass of 12 gm. is held at a height of 200 cm. above a level floor. Find its potential energy, in ergs, estimated relative to the floor as a standard position. If it is allowed to fall, with what velocity will it strike the floor? [ $g = 980$  cm./sec.<sup>2</sup>] (16)

4. Show that the pressure at any point in a liquid at rest is proportional to the depth below the surface, atmospheric pressure being ignored.

The bottom of a jar is able to withstand a pressure of 5 lb. per sq. in. Find, to the nearest tenth of an inch, to what depth it can safely be filled with mercury of specific gravity 13.6. [A cub. ft. of water weighs  $62\frac{1}{2}$  lb.] (16)

## SECTION II.

Only TWO questions should be attempted from this Section.

5. Prove that the magnitude of the resultant of two forces,  $P$  and  $Q$ , acting at a point and inclined at an angle  $\theta$ , is

$$\{P^2 + Q^2 + 2PQ \cos \theta\}^{\frac{1}{2}}.$$

The resultant of forces  $P$  and  $Q$  acting at an angle  $\theta$  is  $(2m + 1) \sqrt{P^2 + Q^2}$ ; when the same forces act at an angle  $90^\circ - \theta$  their resultant is  $(2m - 1) \sqrt{P^2 + Q^2}$ .

Prove that  $\tan \theta = \frac{m - 1}{m + 1}$ . (18)

6. Prove that the horizontal force required to keep a particle of mass  $m$  from sliding down a smooth inclined plane of slope  $\alpha$  is  $mg \tan \alpha$ , and that, when this force acts, the pressure on the plane is  $mg \sec \alpha$ .

Find also the horizontal force that must be applied to the particle to cause it to move up the plane with acceleration  $g$ . (18)

7. State Newton's Laws of Motion, and deduce the relation between the acceleration of a particle, the force acting on it and its mass.

A bucket containing 1 cwt. of coal is drawn up the shaft of a pit and the pressure of the coal on the bottom of the bucket is equal to the weight of 126 lb. Show that the acceleration of the bucket is  $\frac{1}{8}g$ . (18)

8. State Boyle's Law, and describe any method of verifying it experimentally.

The tube of a standard barometer is 35 in. long, measured from the normal surface of the mercury in the tank, and its diameter is 0.1 in. When the barometer stands at 30.1 in. a small quantity of air is introduced into the tube, and the barometer, after adjustment, now stands at 30 in. What volume did the introduced air occupy when it was in the open atmosphere? [ $\pi = 3\frac{1}{7}$ .] (18)

## BOOKKEEPING

Monday, 28th March—10 A.M. to 1 P.M.

*The value attached to each question is shown in brackets after the question. In addition, 25 marks are allowed for writing, ruling and style.*

1. On 31st December, 1925, the assets and liabilities of George Brown & Co. were as follows:—

Cash in hand, £250 0s. 0d.; Cash at Bank, £1,274 1s. 9d.; Bills Receivable—£319 4s. 5d., due 3rd January, £1,004 19s. 2d., due 17th March; Bills Payable—£343 10s. 3d., due 8th January; Debtors—H. Duncombe, £373 1s. 7d., G. Wells, £239 6s. 4d.; Creditors—W. Gregory, £387 14s. 8d; Stock, £1,200.

The capital of the Firm, which consisted of three brothers, was held as to one-half by George Brown, and as to the remainder in equal shares by Charles and James.

Transactions during January, 1926, were as follows:—  
1926.

- Jan. 2. Bought goods of M. Beeston, £121 11s. 7d.  
 „ 3. Amount of bill due to-day collected by Bank.  
 „ 5. Accepted bill at three months payable to W. Gregory for £200 0s. 0d.  
     Balance of his account paid by cheque, less discount £1 11s. 11d.  
 „ 7. Sold goods to H. Duncombe, £525 17s. 6d.  
 „ 8. Met bill due to-day.  
     Cash purchases, £23 15s. 10d.  
 „ 9. F. Dysart bought goods for £438 19s. 10d.  
 „ 10. Received bill drawn on H. Duncombe for £875 17s. 6d. at three months and accepted by him.  
 „ 12. G. Wells settles his account, less £2 14s. 5d. discount.  
 „ 14. Bought goods of W. Gregory for £41 7s. 9d.  
 „ 16. G. Wells purchased goods to the value of £115 14s. 2d.  
 „ 17. H. Duncombe paid £23 0s. 6d.; discount allowed him 1s. 1d.

- Jan. 19. Bought goods of K. Allen for £235 14s. 6*d.*, and gave him acceptance at 4 months' date.  
Drew from bank for cash £23 15s. 10*d.*
- „ 22. Sold G. Wells goods value £91 2s. 4*d.*
- „ 23. Settled M. Beeston's account less £1 0s. 9*d.* discount.
- „ 24. Discounted bill due 17th March for £997 4s. 8*d.*
- „ 25. Bought goods of W. Gregory, £313 2s. 4*d.*
- „ 26. Sold goods to H. Duncombe, £382 7s. 6*d.*  
Cash sales, £28 0s. 2*d.*
- „ 27. G. Wells bankrupt. Received £100 in full and final settlement. Balance written off as a bad debt.
- „ 29. Sold goods to F. Dysart, £41 9s. 5*d.*
- „ 30. F. Dysart forwards cheque for £234 17s. 8*d.* in part payment of his account.
- „ 31. Paid salaries for month (cash), £79 16s. 4*d.*  
Petty expenses for month met from cash, £94 1s. 4*d.*

Allow for rent for month at £200 per annum. Value of stock at 31st January, £872 14s. 5*d.* All receipts were paid into bank the same day, and all payments made by cheque except where otherwise stated.

Open the necessary Books of Account and record the above transactions therein. Bill Books are not required. Post to Ledger. Prepare Trial Balance, Profit and Loss Account, and Balance Sheet as at 31st January, 1926.

(115)

2. A bill for £317 5s. 9*d.*, accepted by D. Roberts, which William Harmer had paid into bank for collection, was returned not having been met. The noting charge came to 1s. 6*d.* Show the entries recording the transactions between Roberts and Harmer as they would appear (a) in Wm. Harmer's ledger (b) in D. Roberts's ledger.

(10)

## COMMERCIAL ARITHMETIC

(FIRST PAPER)

Monday, 28th March, 2 P.M. to 2.30 P.M.

*This paper will be taken up at the end of half-an-hour, when the second paper will be given out.*

*The sums are not to be copied out, and all the calculations required are to be performed mentally.*

*More importance will be attached to accuracy than to quickness.*

*The value attached to each question is shown in brackets after the question.*

Fill this in first

Name of School \_\_\_\_\_

Name of Pupil \_\_\_\_\_

1.—(a) Add :—

£	s.	d.
19,374	17	5
24,965	11	7
79,318	9	3
924	15	1
36,492	17	8
7,867	12	9
789	6	2

(b) Divide :—

Tons.	cwts.	qrs.	lbs.	ozs.	
139	11	0	11	8	by 11.
					(9)

2. Write down the values of the following :—

$$0.637 \times 1.3 \underline{\hspace{10em}}$$

$$98 \text{ articles @ } 3s. 3d. \text{ per dozen } \underline{\hspace{10em}}$$

$$16\frac{2}{3} \text{ per cent. of } £7,325 \underline{\hspace{10em}}$$

$$3.75 \times 0.68 \underline{\hspace{10em}}$$

$$1.7 \times 0.25 \underline{\hspace{10em}}$$

(8)

3. Express :—

0·3625 as a vulgar fraction \_\_\_\_\_

13s. 9d. as a decimal of £1 \_\_\_\_\_

5·37 kilograms + 41·6 grams  
in centigrams \_\_\_\_\_

The square of 15 metres in  
square decimetres \_\_\_\_\_

(8)

## COMMERCIAL ARITHMETIC

(SECOND PAPER)

Monday, 28th March—2.30 P.M. to 4 P.M.

*Before attempting to answer any question, Candidates should read the whole of it very carefully, since time is often lost through misapprehension as to what is really required.*

*All the working must be shown in its proper position in the answer, and the different steps of the calculation should be shortly indicated in words.*

*Algebraical symbols may be used if properly explained.*

*The value attached to each question is shown in brackets after the question. In addition, 7 marks are allowed for neatness, arrangement and style.*

1. Find the cost, to nearest penny, of :—

17 tons 13 cwt. 16 lbs. of tin at £307 10s. 0d.  
per ton. (8)

2. A bankrupt's assets amounted to £2,656 17s. 4½d., and his debts to £11,487. What dividend could he pay in the £? (8)

3. Which gives the better return—a 5 per cent. stock at 87 or a 6 per cent. stock at 104? (8)

4. A bill for £358 6s. 8d., drawn on 2nd June and payable 5 months after date, was discounted on 24th August at 3¼ per cent. How much was received for the bill? (8)

5. A grocer has three kinds of tea, which cost 1s. 8d., 1s. 10d. and 2s. 2d. per lb. respectively. In what proportion must he blend them to sell the mixture at 2s. 6d. per lb. and make a profit of 25 per cent.? (9)

6. Under the Income Tax Acts deductions allowed from income are as follows:—one-sixth of “earned” income; £225 in respect of a married man; £36 in respect of one child and £27 in respect of each subsequent child. The balance of income is chargeable at half-rate on the first £225, and at full rate on the remainder. Calculate the tax that a married man, with three children, would have to pay on an income of £840 18s. 1d., of which £471 11s. 0d. was “earned,” the rate of tax being 4s. in the £. (9)

7. A merchant purchased 3,000 tons of coal from Antwerp at 46 belgas per ton, c.i.f., when the rate of exchange was 34.5 belgas to the £. He sold the coal at an increase of  $33\frac{1}{3}$  per cent. Six months later, when remitting payment to Antwerp, belgas were 35 to the £. What was the actual amount of his profit, to the nearest penny? (9)

8. A sum of money was left in the bank to accumulate at  $3\frac{1}{2}$  per cent., interest being added yearly. In 8 years it had amounted to £2,555. Find the approximate amount of the original sum. (9)

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## SCIENCE

### HIGHER GRADE—(BOTANY)

Tuesday, 29th March—2.15 P.M. to 4.15 P.M.

*Not more than FIVE questions should be attempted. Answers should, wherever possible, be illustrated by diagrams.*

1. A certain yellow-flowered weed (*Brassica sinapis*) is frequent in cornfields in early summer. Mention its common name and the names of four other plants of the same natural order. Enumerate the chief characteristics of their flowers and fruits.

2. What conditions are necessary for the germination of a living seed? Describe carefully all that may be



seen happening in a pea or bean seed while this is in progress. What occurrences mark the beginning of independent growth of the new plant, as distinct from germination?

3. Describe an experiment which demonstrates the process of respiration in plants. Give clear drawings of the apparatus employed.

4. Give an account of the chief features characteristic of flowers which favour the visits of insects. Describe in two instances, *e.g.*, bees and broom, and humble bees and monkshood, the mechanism by which insect visits are successfully accomplished.

5. Describe the appearance of a cross-section of a young root, *e.g.*, a bean seedling. In what respect does it differ from that of the stem of the same plant? Give simple drawings in illustration of your answer.

6. State briefly, in botanical terms, the exact nature of the following:—"thistle down," "cherry stone," "fir cone," tendrils of garden pea plant, a toadstool, the surface parts of a strawberry, the withered "tuft" on a ripe gooseberry, a potato.

7. Make a list of ten common wild flowers representative of at least five natural orders. Arrange these in their usual order of appearance during spring and summer, state the kind of situation (field, wayside, wood, marsh, &c.) in which each most commonly occurs. Select any one of these plants and comment on any features of special interest in its life.

## SCIENCE

### HIGHER GRADE—(CHEMISTRY)

Wednesday, 30th March—2.15 P.M. to 4.15 P.M.

*Not more than FIVE questions should be attempted.  
Answers should, wherever possible, be illustrated by  
diagrams, and supplemented by equations.*

H = 1, O = 16, Na = 23, N = 14, S = 32.

*Mathematical tables will be supplied to those who  
desire them.*

1. Either : Shew how any *five* of the following contributed to the development of the Science of Chemistry :—

Boyle; Lavoisier; Dalton; Avogadro; Mendeleef;  
Madame Curie.

Or : Write a short essay, extending to not more than a page and a half, on the importance of the chemist in the life of a civilized community.

2. To 2.26 gms. of an ammonium salt were added 50 c.c. of normal sodium hydrate solution, and the liquid was boiled until the escaping steam was neutral. Normal sulphuric acid was then added to the liquid until it was neutral. The volume of acid required was 10 c.c. Find the percentage of ammonia in the given salt.

Describe in detail and explain the method by which you would carry out the experiment.

3. Describe the preparation of chlorine, giving in detail the experiments you would perform to illustrate its chief properties.

Mention three elements usually associated with chlorine and draw up a table comparing the properties of the four elements.

Mention two other sets of similarly related elements.

4. State the Law of Definite Proportions and the Law of Multiple Proportions. Illustrate the truth of these laws by reference to any compounds with which you are familiar.

3.6 gms. of the puce coloured oxide of lead were heated gently in a stream of hydrogen. The substance became yellowish in colour and on cooling was found to weigh 3.359 gms. The residue was then heated more strongly in the stream of hydrogen, and metallic beads were formed which weighed 3.118 gms. Interpret these results as fully as you can.

5. How can it be shown that the gas obtained by heating marble is the same as that obtained by treating marble with hydrochloric acid? Give three tests (one, quantitative).

Write an account of the part played by this gas in Nature.

6. Explain shortly the chemical reactions involved in *five* of the following :—

- (1) The blue flame at the top of a clear fire.
- (2) The change in colour when hydrochloric acid and small pieces of zinc are added to a solution of ferric chloride.
- (3) The formation of stalactites.
- (4) The hardening of mortar.
- (5) The disappearance of the colour when chlorine water is exposed to sunlight.
- (6) The disappearance of the odour when coal gas is burned.

7. Write a short account of *one* of the following :—

- (1) Manufacture of phosphorus.
- (2) Refrigeration by means of ammonia.
- (3) Manufacture of coal gas for domestic purposes.

## SCIENCE

### HIGHER GRADE—(ENGINEERING)

Wednesday, 30th March—2.15 P.M. to 4.15 P.M.

*FIVE* questions should be attempted, *viz.*, *THREE* questions from Section A, and *TWO* questions from Section B.

*When Candidates use a formula they must explain each symbol and show as far as possible how the formula is built up. Units must always be stated.*

Take  $\pi = \frac{22}{7}$ , and  $g = 32$  ft. per sec. per sec.

*Four-place logarithmic tables are provided.*

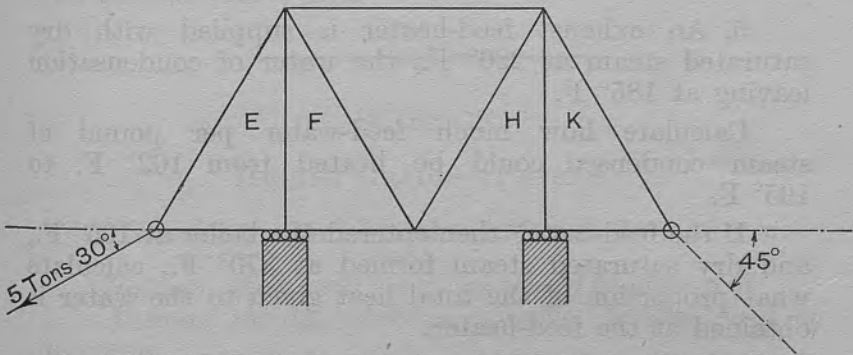
### SECTION A.

1. On a straight level stretch of railway line two stations, *A* and *B*, are 60 miles apart. A train leaves station *A* at 10 a.m. and, increasing speed uniformly, attains a maximum speed of 60 miles per hour after a run of 10 miles. It maintains this maximum speed until approaching station *B*, when it reduces speed at

$1\frac{1}{2}$  times the former rate of increase, and finally comes to a stop at station  $B$ . Find the time of its arrival at station  $B$ .

If a second (non-stop) train, travelling at 50 miles per hour in the opposite direction, passed the first  $3\frac{3}{4}$  miles from  $B$ , find the relative speed of each to the other at the moment of passing.

2. A framed structure, freely jointed, is shown in the figure below. The structure is at rest on roller bearings placed on two walls so that both reactions are truly vertical. A pull of 5 tons acts at the extreme left-hand joint, as illustrated, and is inclined to the horizontal at  $30^\circ$ . At the extreme right-hand joint another force of unknown magnitude acts along a line inclined to the horizontal at  $45^\circ$ , as indicated. Prick off the essential parts of the figure into your examination book, and determine *graphically* the magnitude and direction of the unknown load, and the reactions of the two walls. State the magnitude and kind of stress in each of the members  $EF$  and  $HK$ , giving reasons for your answer.



3. A cord is wrapped round the spindle of a fly-wheel, and to the hanging end of the cord a load  $W$  is attached. The diameters of the cord and spindle together equal 2 inches. It is found that friction of the bearings is just overcome when  $W$  is 3 lbs. The load  $W$  is then increased to 40 lbs. and allowed to start from rest. It is now found that in 10 seconds the load descends through 6 feet.

Determine the angular acceleration of the wheel, and its moment of inertia. If the wheel and spindle together weigh 210 lbs., what is their radius of gyration?

4. A motor car, which, when running on a perfectly straight level stretch of road, has its gross weight of one ton uniformly distributed over all four wheels, comes to a curved, but still level, part of the road, where the radius of curvature at the instant under consideration is 121 feet, and the loads on the front and back wheels nearer the centre of curvature are reduced to one-half of their amount on the straight.

If the distance between the centres of each pair of wheels measured across the car is 5 feet and the height of the centre of gravity above the road surface 2 feet 6 inches, determine the speed of the car in miles per hour at this instant.

Make a neat sketch of the car, and show all the forces *acting on it*. Determine the least value of the co-efficient of friction between tyres and road surface to prevent side slip.

Indicate clearly the origin of the force that produces the required radial acceleration.

## SECTION B.

5. An exhaust feed-heater, is supplied with dry saturated steam at  $220^{\circ}$  F., the water of condensation leaving at  $185^{\circ}$  F.

Calculate how much feed-water per pound of steam condensed could be heated from  $102^{\circ}$  F. to  $195^{\circ}$  F.

If the feed-water then entered the boiler at  $195^{\circ}$  F., and dry saturated steam formed at  $370^{\circ}$  F., calculate what proportion of the total heat given to the water is obtained at the feed-heater.

[Latent heat =  $(1,114 - 0.695 (F. ^{\circ}))$  B.Th.U. per lb.]

6. In a steam-engine test at full load the following results were obtained:—Mean effective pressure, 51 and 48 lbs. per square inch at cover-end and crank-end respectively; revolutions per minute, 105.

Calculate the indicated horse-power, the engine having the following dimensions:—cylinder diameter, 14 inches; crank, 18 inches; piston-rod diameter,  $3\frac{1}{2}$  inches.

If the mechanical efficiency of the engine is 87 per cent., calculate the brake horse-power.

7. The connecting-rod of a steam-engine is  $2\frac{1}{2}$  cranks in length and the travel of its slide-valve is  $4\frac{1}{2}$  inches.

You are required to draw out a valve diagram from these data and the data given below, and from your diagram to fill in the blanks in the table.

	Cover-end.	Crank-end.
Admission (angle of crank)	—	—
Lead - - - -	—	$\frac{1}{2}$ inch.
Cut-off - - - -	0.60 of stroke.	—
Release - - - -	0.85 of stroke.	0.8 of stroke.
Compression - - - -	0.81 of stroke.	—
Outside lap - - - -	—	—
Inside lap - - - -	—	—
Angle of advance - - - -	—	—

If the larger maximum port opening is  $\frac{2}{3}$  of the width of the steam ports, the bars between the ports 1 inch in width, and the exhaust port 2 inches in width, sketch to full size scale the valve in the centre of its travel over the cylinder ports. Indicate clearly the two outside laps and the two inside laps.

## SCIENCE

### HIGHER GRADE—(PHYSICS)

Wednesday, 23rd March—1.30 P.M. to 3.30 P.M.

*Not more than FIVE questions should be attempted.*

*Answers should, wherever possible, be illustrated by diagrams.*

*Mathematical tables will be supplied to those who desire them.*

*Before handing in your examination book you should enter in the space provided on the front cover the numbers of the questions you have attempted.*

### SECTION I. (MECHANICS).

1. Define the following terms:—force, couple, momentum, work.

A horizontal bar poised at its middle point is held in equilibrium by two horizontal couples, the forces in

each case acting at the ends of the bar. The forces of one couple are at right angles to the bar, and the forces of the other couple make an angle of  $120^\circ$  with those of the first. Find the ratio of the forces of the two couples.

2. Describe any form of apparatus for investigating the laws of motion of falling bodies.

When using this apparatus—

- (a) How did you measure the acceleration of the falling bodies?
- (b) How did you find the value of the acceleration due to the earth's attraction? Illustrate your answer by a numerical example in which you use approximately suitable numerical values for the requisite quantities.

## SECTION II. (SOUND).

3. Distinguish between the pitch, the intensity, and the quality (or *timbre*) of a musical note; and say on what physical fact each depends. How can (a) the pitch, (b) the intensity, of a given tuning fork be varied? Give an explanation in each case.

4. Give an explanation of each of the following phenomena:—

- (a) The pitch of a piece of music played on a gramophone may be varied by varying the speed at which it is played.
- (b) With a closed organ pipe the lowest note that can be produced has its wave-length four times the length of the pipe.
- (c) If two adjacent black and white keys of a piano are struck simultaneously, an unpleasant effect is produced.

## SECTION III. (HEAT).

5. You are asked to find by experiment the cooling curves of water and paraffin wax between the temperatures of  $70^\circ$  C. and  $40^\circ$  C. and to draw these curves on the same diagram. Describe your experiment, laying stress on the precautions you would take.

Draw these curves (approximately), say what you can deduce from them, and explain the differences between them.

[Melting point of paraffin wax =  $54^{\circ}$  C.]

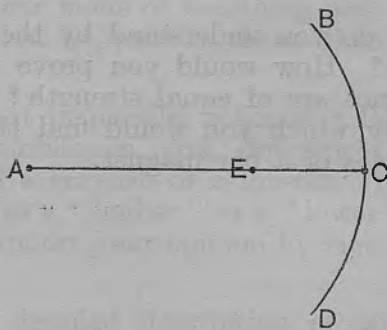
6. Distinguish carefully between temperature and heat. What is meant by absolute temperature? How has the position of absolute zero on the Centigrade scale been determined? Describe carefully the necessary experiments.

7. What is meant by "thermal conductivity"? Give an account of Forbes's bar experiments on the conduction of heat. Make clear why he used two bars, and what he learned from each.

#### SECTION IV. (LIGHT).

8. By means of carefully drawn diagrams show the paths of rays of light diverging from a point and reflected by (a) a concave, (b) a convex mirror. (Two rays in each case will be sufficient. The directions of the incident and the reflected rays should be indicated by arrow heads.)

A beam of light issuing from the point  $A$  (see figure below) is reflected by the concave mirror  $BCD$  on to a small mirror at  $E$ , and is finally focused at  $C$ . If  $AC = 9$  ins.,  $EC = 3$  ins., and the radius of the concave mirror is 6 ins., find the nature of the small mirror at  $E$  (plane, concave, or convex).



9. Give a clear explanation of the phenomenon of the rainbow. Explain also the fact that sometimes a second bow is seen, dimmer and with the colours reversed.



## SECTION V. (ELECTRICITY AND MAGNETISM).

10. Define the term "electrostatic capacity." What exactly is meant by the statement:—The capacity of an isolated sphere is measured by its radius? Explain the action of a Leyden jar or other form of condenser. If a Leyden jar which has been charged in the ordinary way is set upon a glass plate, a small spark can be obtained by touching the knob. Explain this.

11. How would you find (a) the resistance, (b) the specific resistance, of a given piece of wire?

The terminals of a galvanometer of resistance 200 ohms are joined by a piece of wire of resistance 5 ohms, so that a current goes partly through the galvanometer and partly through the wire. If the galvanometer shows that 0.025 ampere is passing through it, what is the whole current strength?

12. By what experiments would you investigate the relation between the amount of heat produced in a conductor, the current strength, the resistance of the conductor, and the duration of the current?

If a current of 1.5 amperes when passed through a resistance of 2.5 ohms generates sufficient heat to raise the temperature of 33.75 gms. of water through  $1^{\circ}$  C. in 25 seconds, find the current necessary to raise the temperature of 100 gms. of water from  $16^{\circ}$  C. to  $100^{\circ}$  C. in a minute, if the resistance is 100 ohms.

13. What do you understand by the strength of a magnetic pole? How would you prove that the poles of a bar magnet are of equal strength? Describe the experiments by which you would find the strength of each of the poles of a bar magnet.

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## SCIENCE

## HIGHER GRADE (ZOOLOGY)

Monday, 28th March—2 P.M. to 4 P.M.

Not more than FIVE questions in all should be attempted.

Answers to questions in Section I and in Section II should be entered in separate books; and before handing in their books candidates should enter in the space provided on the front cover of EACH the numbers of the questions they have attempted in BOTH Sections.

Answers should, wherever possible, be illustrated by diagrams.

## SECTION I—GENERAL ZOOLOGY.

Answers to questions in this Section must be written in the GREEN book.

1. Describe fully, with the help of a detailed drawing, the appearance of a typical *Amœba*. As you watch an *Amœba*, what may you see that convinces you (a) that it is a living organism, and (b) that it is an animal and not a plant?

2. Give in orderly arrangement a series of short paragraphs describing the main features in the structure, life-history, and habits of any common insect, e.g., Large White Butterfly.

3. Make a list of six of the more common invertebrates inhabiting fresh water pools. Classify these, and mention their mode of breathing and the nature of their food. What happens to them when the pool dries up?

4. Write out in parallel columns a list of the more important resemblances and differences between an earthworm and a crayfish or a lobster. Do you regard the earthworm as a "higher" or a "lower" animal than the other? Support your opinion by facts selected from your list.

5. Give a detailed description of any two of the following:—the apical disc of a sea-urchin, the shell of a bivalve mollusc, a tadpole just before the appearance of hind limbs, a fully developed *Hydra*, the external features of a fish.

6. Describe the external features of the head (including the mouth cavity) and feet of any common bird, *e.g.*, a pigeon. Contrast these with the corresponding parts of a mammal, *e.g.*, a rabbit. (Keep in view specially the different habits of the bird and the mammal.)

7. What general purposes are served by the skeleton in the animal body? Give a named drawing of a typical mammalian vertebra. Point out clearly the uses of its several parts.

## SECTION II—HUMAN PHYSIOLOGY,

Answers to questions in this Section must be written in the **YELLOW** book.

8. Describe fully the function of the human lung and show how its structure is adapted to its function.

9. Give an account (with illustrative drawing) of the human alimentary tract, and indicate what digestive processes take place in each part of the tract.

10. Write a full account of any *two* of the following :—  
muscle, kidney, nerve, ductless gland, heart.

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## APPENDIX.

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### LIST OF UNIVERSITY AND PROFESSIONAL AUTHORITIES BY WHOM EVIDENCE OF HAVING PASSED AT THE LEAVING CERTIFI- CATE EXAMINATION IS ACCEPTED IN LIEU OF PRELIMINARY EXAMINATIONS.

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- The Lords of Council and Session (for the purposes of the Law Agents Act);
- The Society of Solicitors before the Supreme Courts;
- The University of Oxford;
- The University of Cambridge;
- The Scottish Universities Entrance Board;
- The University of London;
- The University of Bristol;
- The University of Wales;
- The Queen's University of Belfast;
- Girton College, Cambridge;
- The Imperial College of Science and Technology;
- Royal Holloway College, Englefield Green, Surrey;
- The General Council of Medical Examination and Registration of the United Kingdom;
- The Pharmaceutical Society of Great Britain;\*
- The Royal College of Surgeons of Edinburgh;
- The Chartered Accountants of Scotland;
- The London Association of Accountants;
- The Chartered Institute of Secretaries;
- The Chartered Insurance Institute;
- The Institute of Chartered Accountants in England and Wales;
- The Institute of Municipal Treasurers and Accountants (Incorporated);\*
- The Faculty of Actuaries in Scotland;
- The Institute of Bankers;
- The Institute of Chemistry of Great Britain and Ireland;
- The Institution of Civil Engineers;
- The Institution of Municipal and County Engineers;
- The Royal Institute of British Architects;
- The Royal Sanitary Association of Scotland;\*
- The Surveyors' Institution;
- The Royal College of Veterinary Surgeons.\*

\* Evidence of having obtained the Day School Certificate (Higher) is also accepted by these Bodies.



SCOTTISH EDUCATION DEPARTMENT.—1927.

- Reports, &c., 1925-26. Price 12s. 6d.; post free, 13s.  
*This Volume contains Reports, Statistics, Regulations, Minutes, Circulars, Leaving Certificate Examination Papers, &c.*
- Report of the Committee of Council on Education in Scotland, 1925-26. [Cmd. 2676.] Price 1s.; post free, 1s. 1d.
- Fifty-Third Annual Report by the Accountant in Edinburgh (Year 1924-25). Price 9d.; post free, 9½d.
- Second Quinquennial Report on Physical Education in Schools in Scotland, for the period of five years ended 30th June, 1922, by Dr. Lewis D. Cruickshank. Price 6d.; post free, 6½d.
- General Reports for the year 1926 on Day Schools, by His Majesty's Chief Inspectors of Schools in Scotland. Price 1s. 3d.; post free, 1s. 4d.
- Report and Statistics relating to the Training of Teachers, 1924-26. Price 1s. 9d.; post free, 1s. 10d.
- Return showing (i) Grant-Earning Day Schools and Institutions, and (ii) Continuation Classes and Central Institutions, with Statistics relating thereto, for 1924-25. Price 5s.; post free, 5s. 1½d.
- Royal Scottish Museum. Report for the year 1921-22. Price 6d.; post free, 6½d.
- Secondary Education: Report, 1915. Price 3d.; post free, 4d.
- Leaving Certificate Examination Papers, including Day School Certificate (Higher) General Paper, 1926. Price 1s. 9d.; post free, 1s. 10½d.
- Leaving Certificate Examination. Circular 30, relating to the Examination of 1927. Price 2d.; post free, 2½d.
- Lists of Education Authorities, &c., 1927. Price 1s.; post free, 1s. 0½d.
- Circular 44 (Alterations in the Examination System). Price 1d.; post free, 1½d.
- Circular 60 (Conditions of the award of Day School Certificates (Higher)). Price 1d.; post free, 1½d.
- Circular 61 (Leaving Certificate Examination: English Papers). Price 1d.; post free, 1½d.
- Circular 62 (Leaving Certificate: New Regulations for award of). Price 1d.; post free, 1½d.
- Circular 63 (Conditions of the award of Day School Certificates (Lower)). Price 1d.; post free, 1½d.
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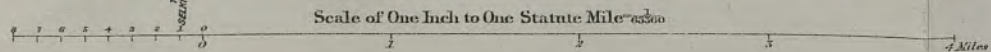
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