SECONDARY EDUCATION (SCOTLAND)

LEAVING CERTIFICATE EXAMINATION

(INCLUDING DAY SCHOOL CERTIFICATE (HIGHER) GENERAL PAPER)

EXAMINATION PAPERS 1938

EDINBURGH
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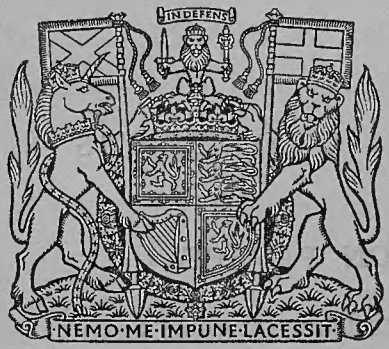

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EXAMINATION PAPERS—

APPENDIX—

LEAVING CERTIFICATE EXAMINATION

(including Day School Certificate (Higher) General Paper).

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 1938 it commenced on Monday, 21st March.

For information as to the purpose and scope of the Examination, and as to the conditions on which pupils (of Scottish schools) may be presented, reference should be made to the Department's circular 30, dated 23rd September, 1937. (Price 4*d*. ; post free 5*d*.)

EXAMINATION PAPERS

1938

DAY SCHOOL CERTIFICATE (HIGHER)

GENERAL PAPER

Wednesday, 23rd March—9.30 A.M. to 11.30 A.M.

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

N.B.—Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing.

1. Write a Composition, to fill *about a page and a half* of your book, on *one* of the following subjects :—

(*a*) Scottish Wild Birds.

(*b*) " Ivanhoe " *or* " Treasure Island " *or* " Peter Pan."

(*c*) The Story of Noah and the Flood.

(*d*) The Best Film you have seen.

(*e*) An account of your School Sports *or* of your School Concert *or* of your School Prize-Giving Ceremony.

(*f*) Suppose that in your mother's absence you are left in charge of the house for a day. Write a letter to a friend telling how you would spend the time.

(35)

2. Read the following passage carefully and then answer the questions on it :—

At last it dawned on me that there had been a death, and the shops were all closed for the funeral. " He was took very sudden," said the old man in a low voice. " Right when he was working. He just lifted his hammer, when he fell down dead." The funeral service was in progress at the moment, and this shop in common with others along the route where the procession passed to church and back was closed for an hour. As I looked, I saw first a man in a top hat, then two by two a line of mourners. I knew these men ; one saw them daily manipulating the awnings of their shops, scaling ladders, driving horses, or digging gardens. But now I knew them not. It was their clothes, those black suits long laid up, sanctified by a generation of Sundays. Their trousers dented while they walked ; their coats flapped open, hanging squarely from their high, wide shoulders. The older men's beards rested on their chests as they moved with bowed heads along the street ; they had an air of quiet purpose, those men who had looked into the grave and were not far from it themselves.

The band of mourners seemed small and lonely. The sunlight flaunting in the square mocked their sombre clothes ; the breeze laughed at their solemn pace. But they did not heed the day ; the poise of their heads did not alter for sun or wind. Behind them blinds flew up, shutters swung open, and people came out again. A minute ago the town might have been uninhabited ; now boots rang on the pavement, and shirt sleeves were being rolled up to the elbows of summer brown arms. We too stirred, and I became aware of my surroundings—the twilight studded with brilliance where the lattice was, the red joints, the odour of flesh, and the knives. The old man folded back the shutters. The subdued tone of his voice was gone, and he asked my needs in the brisk and cheerful voice of business. But Mark Ashden's premises did not awaken ; no window opened ; no blind lifted. Within, the yard was empty, the forge black.

(*a*) Suggest a title for the passage. (1)

(*b*) What explanation can you give of the writer's presence in the town ? (1)

(*c*) Describe the scene of the conversation between the writer and the old man. (3)

(*d*) Set down all the information we are given about the dead man. **(3)**

(*e*) Compare briefly the state of the town during the funeral with its state after the funeral. **(3)**

(*f*) Enumerate the various types of men who formed the procession. **(4)**

(*g*) Write a short account of the appearance of the mourners. **(5)**

3. (The following questions all refer to the passage in question 2.)

(*a*) Explain carefully the following phrases as used in the passage :—manipulating the awnings of their shops (lines 10–11) ; a generation of Sundays (lines 13–14) ; were not far from it themselves (line 19) ; summer brown arms (line 28) ; studded with brilliance (line 30). **(10)**

(*b*) Give the meaning of the following words as used in the passage :—route (line 7) ; dented (line 14) ; flaunting (line 21) ; sombre (line 21) ; poise (line 23). **(5)**

(*c*) Correct the English of :—" He was took very sudden " (lines 2–3), and give reasons for your corrections. **(4)**

(*d*) Substitute subordinate clauses for the phrases printed below in italics, and say what kind of clause each is :—

The shops were all closed *for the funeral* (line 2).
I saw a man *in a top hat* (lines 8–9).
He asked *my needs* (line 33). **(6)**

4. (*a*) Rewrite the following passage, inserting all capitals and marks of punctuation :—

have you no friends i asked he replied he had a father in some english seaport he was a fine man too he said but hes dead in heavens name cried i can you find no reputable life on shore o no says he looking very sly they would put me to a trade. **(6)**

(*b*) Combine the following statements into a complex sentence :—

The cobra is the deadliest of snakes—the snake charmer seizes it fearlessly—the cobra is caught as in a vice. **(5)**

(*c*) Write down the possessive (or genitive) case of each of the following :—

women, ladies, who, it, mother-in-law, Charles. (3)

5. To what incidents related in the Bible do the following phrases refer?

the mark of Cain ; a coat of many colours ; the golden calf ; loaves and fishes ; a crown of thorns ; the penitent thief. (6)

1938

LEAVING CERTIFICATE EXAMINATION

ENGLISH

(INCLUDING LITERATURE AND HISTORY)

(FIRST PAPER (*a*)—COMPOSITION)

Monday, 21st March—9.30 A.M. to 10.30 A.M.

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

N.B.—Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing.

Write a Composition, *not exceeding three foolscap pages in length,* on any *one* of the following subjects :—

(*a*) The value of sympathy between nations, and the methods *open to the ordinary individual* of promoting it personally.

(*b*) Describe a bicycle to a savage who has never heard of it.

(*c*) If you wanted to build yourself a house and had the choice of all Scotland, what sort of house would you build, where would you build it and why ?

(*d*) A description and appreciation of your favourite painting *or* building *or* statue *or* musical composition.

(*e*) The influence of women on the course of history.

(*f*) Bird-life in your garden, or in any particular spot where you are familiar with it.

(35)

ENGLISH
(INCLUDING LITERATURE AND HISTORY)
(FIRST PAPER (*b*)—INTERPRETATION AND LANGUAGE)

Monday, 21st March—10.45 A.M. to 12.25 P.M.

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

N.B.—Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing.

1. When I see the spirit of liberty in action, I see a strong principle at work; and this, for a while, is all I can possibly know of it. The wild gas, the fixed air is plainly broke loose; but we ought to suspend our judgment until the first effervescence is a little subsided, till the liquor is cleared, and until we see something deeper than the agitation of a troubled and frothy surface. I must be tolerably sure, before I venture publicly to congratulate men upon a blessing, that they have really received one. Flattery corrupts both the receiver and the giver; and adulation is not of more value to the people than to kings. I should therefore suspend my congratulations on the new liberty of France, until I was informed how it had been combined with government; with public force; with discipline and obedience of armies; with the collection of an effective and well-distributed revenue; with morality and religion; with solidity and property; with peace and order; with civil and social manners. All these (in their way) are good things too; and, without them, liberty is not a benefit whilst it lasts, and is not likely to continue long. The effect of liberty to individuals is, that they may do what they please; we ought to see what it will please them to do, before we risk congratulations, which may soon be turned into complaints. Prudence would dictate this in the case of separate, insulated, private men; but liberty, when men act in bodies, is power. Considerate people, before they declare themselves, will observe the use which is made of power; and particularly of so trying a thing as new power in new persons, of whose principles, tempers, and dispositions they have little or no experience, and in situations where those who appear the most stirring in the scene may possibly not be the real movers.

Edmund Burke.

(*a*) While omitting nothing relevant to the *main* argument, reduce the above passage to about a third of its length in two paragraphs, using your own words as far as possible. (15)

(*b*) Make a general analysis into clauses of the sentence "I must be tolerably sure . . . . received one" (lines 7 to 9). (3)

(*c*) Explain, briefly, the following :—*Suspend our judgment* (line 4), *public force* (line 14), *well-distributed revenue* (line 16), *civil and social manners* (lines 17 and 18), *real movers* (line 32) ; and in the phrase *separate, insulated, private men* (line 25) give the precise meaning of each adjective. (13)

(*d*) Discuss briefly the metaphor contained in lines 3 to 7. (3)

(*e*) Give the derivation of any *five* of the following words :—liberty, effervescence, judgment, surface, kings, government, benefit, receiver, civil, disposition. (5)

2. Comment briefly on any errors in the following sentences and re-write them correctly :—

(*a*) The principle sources of the English vocabulary were brought by the invaders of the country.

(*b*) The younger Pitt was equally as great and even greater than his father.

(*c*) Though Shakespeare had a fair education, it was not acquired knowledge that can be attributed to his brilliance.

(*d*) Richard is one of those people who has been made for the very purpose of being king.

(*e*) Though we may deplore him for his conceit and jealousy, we cannot help but admire him for his loyalty.

(*f*) The scenes of the Waverley Novels are centred round the Borders.

(*g*) And Scotland's poet lay there dying, with an incubus of debt gnawing at his vitals. (14)

3. (*a*) Give an example of:—rhyme, blank verse, alliteration, epigram. **(4)**

(*b*) Compose a single sentence illustrating the correct use of the comma, the semi-colon and inverted commas. **(3)**

(*c*) Write in the third person a formal acceptance of an invitation to a friend's wedding. **(5)**

ENGLISH

(INCLUDING LITERATURE AND HISTORY)

(SECOND PAPER—LITERATURE)

Monday, 21st March—1.30 P.M. to 2.45 P.M.

All candidates should attempt THREE questions, and three only, of which No. 1 is compulsory.

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

N.B.—Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing.

(*Answer the* FIRST *question and any* TWO *of the others.*)

1. By reference to his or her behaviour in the play concerned, sketch the principal traits in the character of any *one* of the following:—Kent, Claudius, Cordelia, Malvolio, Bottom, Touchstone, Bolingbroke, Hotspur, Miranda.

Or

Describe the most painful scene which you like reading in any of Shakespeare's tragedies and explain briefly why it gives you pleasure.

Or

In the plays of Shakespeare that you have read what evidence can you discover to show that he was a lover of music? **(16)**

2. Illustrate, with appropriate quotations from their works, the descriptive powers of Chaucer **or** Spenser **or** Milton.

Or

Consider the strong and weak points of Pope **or** Burns **or** Tennyson as a poet. (12)

3. Comment briefly on any *four* of the following, mentioning in each case the author and his approximate date :—*On the late Massacre in Piedmont, The Vanity of Human Wishes, The Bard, Hohenlinden, The Solitary Reaper, Adonais, Isabella, The Scholar Gipsy, Reynard the Fox.* (12)

4. What do you know of Scottish literature before the time of Burns ?

Or

Write a critical appreciation of any novel or play by Barrie **or** of any recent book on Scotland. (12)

5. Show your acquaintance with a work by any *one* of the following :—Swift, Gibbon, Carlyle, Gilbert White, Charles Darwin, Sir James Jeans, H. G. Wells. (12)

6. Write on Boswell as a biographer ;
or on Galt as a novelist ;
or on R. L. Stevenson as an essayist. (12)

ENGLISH

(INCLUDING LITERATURE AND HISTORY)

(THIRD PAPER—HISTORY)

Monday, 21st March—3 P.M. to 4.15 P.M.

All candidates must attempt THREE questions, viz., the question in Section A and two questions from Section B, one of which must be selected from Sub-section (3).

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

N.B.—Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing.

Section A

This question must be attempted by all candidates. The answers to the individual points should be brief, and not more than 15 *minutes should be devoted to the whole question.*

1. Show *briefly* the historical significance of *five* of the following:—Landing of St. Augustine; Treaty of Northampton (1328); Deposition of Richard II; Marriage of Ferdinand and Isabella; Sailing of the Mayflower; Toleration Act (1689); Impeachment of Warren Hastings; Battle of Waterloo; Congress of Berlin (1878); Parliament Act (1911). **(10)**

Section B

Two of the ten questions in this Section must be answered, and one of these two must be selected from the last five.

Sub-section (1). Early Period (55 B.C. to 1485 A.D.).

2. **Either** (*a*) Describe the chief voyages and settlements of the Norsemen, with particular reference to the British Isles.

Or (*b*) Explain the effects of the Norman Conquest both on England and on Scotland. **(15)**

3. (*a*) What were the questions at issue in the Investiture Contest between the Papacy and the Empire and how were they settled at the Concordat of Worms?

Or (*b*) Why did the Hundred Years' War break out under Edward III, and why was it resumed under Henry V?

Or (*c*) Describe the chief changes in the social conditions of England and Scotland during the fourteenth and fifteenth centuries. **(15)**

Sub-section (2). Middle Period (1485–1763).

4. **Either** (*a*) What do you understand by the term "Tudor despotism"? Explain and illustrate its chief features.

Or (*b*) Trace the main outlines of Anglo-Scottish relations between 1503 and 1560. **(15)**

5. **Either** (*a*) Do you consider that the English Civil War of 1642 was due chiefly to religious or to political causes? Give your reasons.

Or (*b*) Estimate the influence of Louis XIV both on France and on Europe. (15)

6. Discuss the historical importance of *two* of the following:—Erasmus; Thomas Cromwell; Emperor Charles V; Cardinal David Beaton; Sir Francis Drake; Gustavus Adolphus; William Paterson; Henry St. John, Viscount Bolingbroke; James Wolfe. (15)

SUB-SECTION (3). MODERN PERIOD (1763–1938).

7. **Either** (*a*) Do you consider that the loss of the American colonies could have been avoided if George III and his ministers had shown better statesmanship? Give your reasons.

Or (*b*) "The Industrial Revolution was not an event but a process." Illustrate this statement from your knowledge of the development *in the nineteenth century* of (i) transport, (ii) conditions of work in factories. (15)

8. Explain the need for parliamentary reform before 1832 and show how it was brought about in that year. (15)

9. (*a*) Why were the years after 1840 known as the "Hungry Forties"? To what do you attribute the return of prosperity?

Or (*b*) Explain why the term "Year of Revolution" has been applied to 1848 and estimate how far the revolutionary movement was successful.

Or (*c*) What were the causes of the Indian Mutiny and what were its principal results? (15)

10. Discuss the historical importance of *two* of the following:—Edmund Burke; William Wilberforce; Horatio Nelson; Dr. Chalmers; Gibbon Wakefield; Giuseppe Garibaldi; Louis Pasteur; Abraham Lincoln; C. S. Parnell; Guglielmo Marconi. (15)

11. (*a*) Explain the chief stages in the growth of Canadian self-government from 1837 to the present time.

Or (*b*) To what extent has the League of Nations been a success?

Or (*c*) Give some account of the Indian Reforms of 1935 and of the difficulties encountered in carrying them out. (15)

LATIN

Lower Grade

Monday, 28th March—9.30 A.M. to 12 NOON

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

N.B.—Begin the answer (or fair copy of an answer) to each question on a fresh page. Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing.

1. Translate into English :—

(*a*) *Alexander the Great has been wounded in the thigh : the regret of the enemy, and the rivalry among his soldiers for the honour of carrying his litter.*

Alexander sagitta ictus est, quae medio in crure fixa reliquerat spiculum[1]. illum maesti milites in castra referebant. sciverunt hostium duces regem esse ex acie subductum, quod ex alto monte omnia prospexerant. postero die misere legatos ad regem, quos statim iussit admitti. eis crus ostendit. iussi considere affirmant non Macedonas fuisse tristiores quam ipsos cognito regis vulnere : cuius auctorem si repperissent, se dedituros fuisse ; virtute regis superatos, se gentem in fidem dedere. rex, captivis receptis, gentem in deditionem accepit. castris inde motis lectica ferebatur, quam pro se quisque eques pedesque subire certabant. equites, cum quibus rex proelia inire solitus erat, sui muneris id esse dicebant ; pedites querebantur, cum vulneratos commilitones ipsi ferre adsuevissent, eripi sibi proprium officium tum potissimum cum rex ferendus esset. rex in vicem[2] subire eos iussit. **(30)**

[1] spiculum = barb. [2] in vicem = in turn.

(*b*) *A tribune has threatened to accuse, before the assembly of the common people, a father for cruelty to his son.*

Hoc crimine animus omnium irritatus est. sed iuvenis aegre passus est se esse parenti invidiae[1] causam. ut omnes igitur di hominesque scirent se parenti quam inimicis eius opem ferre malle, hoc consilium capit. inscientibus omnibus, gladio sumpto, mane domum tribuni petivit. ianitori se cum domino eius colloqui velle dixit. mox introductus, tribuno

[1] invidia = unpopularity.

" sunt," inquit, " quae tecum agere, arbitris[1] remotis, velim." omnibus inde abire iussis gladium stringit; et super lectum[2] stans, ferro intento, minatur se eum statim transfixurum, nisi iuraret se, patris eius accusandi causa, concilium plebis nunquam habiturum. tribunus pavidus cum gladium ante oculos micare, se solum et inermem, illum validum et ferocem videret, iuravit. sic coactus incepto destitit. (20)

[1] arbiter = witness. [2] lectus = bed.

2. Translate into Latin :—
   (1) Why do you not use the spears which I prepared?
   (2) Let us go to the hills to avoid the heat of the sun.
   (3) Since he has decided to remain here, I shall see him every day.
   (4) Can you tell us if all the baggage was captured?
   (5) Hearing that our friends had arrived, I ran home.
   (6) My sister said that she had not been frightened by the shouting.
   (7) I ordered my children never to play near that river.
   (8) Our city is so far from the sea that no fleet can attack us. (23)

3. (*a*) Give the superlative of magnopere, acriter, male, facile, longe.
   (*b*) Give the nominative plural of clades, genu, scelus, lapis, obses.
   (*c*) Give the nominative singular masculine of the perfect participle of metior, labor, nanciscor, reor, confido. (7)

LATIN

Higher Grade—(First Paper)

Monday, 28th March—9.30 A.M. to 12 NOON

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

N.B.—Begin the answer (or fair copy of an answer) to each question on a fresh page. Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing.

Translate into English the following passages :—

1. *Cicero explains why he cannot defend Autronius, a friend of his boyhood.*

Saepe veniebat ad me Autronius multis cum lacrimis supplex ut se defenderem ; se meum condiscipulum in pueritia, familiarem in adulescentia, collegam in quaestura commemorabat fuisse. multa mea in se, non nulla etiam sua in me proferebat officia. quibus rebus ita flectebar animo, ut iam ex memoria, quas mihi ipse fecerat, insidias deponerem, ut iam inmissum esse ab eo C. Cornelium, qui me in meis sedibus, in conspectu uxoris ac liberorum meorum trucidaret, obliviscerer. quae si de uno me cogitasset, qua mollitia sum animi ac lenitate, nunquam illius lacrimis ac precibus restitissem. sed cum mihi patriae, cum puerorum infantium, cum matronarum ac virginum veniebat in mentem ; cum totius urbis incendium, cum caedes, cum civium cruor versari ante oculos coeperat ; tum denique resistebam non solum illi sed his etiam propinquis illius, Marcellis, patri et filio. neque me arbitrabar sine summo scelere posse, quod maleficium in aliis vindicassem, idem in illorum socio defendere. **(35)**

2. *While Latinus's followers are arguing, news comes that Aeneas is advancing against them.*

Illi haec inter se dubiis de rebus agebant
certantes ; castra Aeneas aciemque movebat :
nuntius ingenti per regia tecta tumultu
ecce ruit magnisque urbem terroribus implet,
instructos acie Tiberino a flumine Teucros
Tyrrhenamque manum totis descendere campis.
extemplo turbati animi concussaque vulgi
pectora et arrectae stimulis haud mollibus irae.
arma manu trepidi poscunt, fremit arma iuventus,
flent maesti mussantque[1] patres. hinc undique clamor
dissensu vario magnus se tollit in auras.
" immo," ait, " o cives," arrepto tempore Turnus,
" cogite concilium et pacem laudate sedentes :
illi armis in regna ruunt." nec plura locutus
corripuit sese et tectis citus extulit altis.

[1] mussare = to mutter.

Scan the lines beginning immo, cogite, and illi armis, marking the caesura in each. **(30)**

3. *A loyal Spanish tribe asks help from the Consul.*

Legati ad consulem venerunt querentes castella sua oppugnari, nec spem ullam esse resistendi nisi praesidium Romani misissent ; quinque milia militum satis esse ; nec hostes, si tanta manus venisset, mansuros. ad ea consul moveri quidem se periculo eorum dixit ; sed sibi nequaquam tantum copiarum esse ut, cum magna vis hostium haud procul abesset, dividendo exercitum minuere tuto vires posset. legati ubi haec audierunt, flentes ad genua consulis provolvuntur. orant ne se in rebus tam trepidis deserat ; nullos se socios habere. potuisse se extra id periculum esse si decedere fide, si coniurare cum ceteris voluissent ; nullis minis se motos, sperantes satis opis et auxilii sibi in Romanis esse. id si sibi a consule negetur, invitos et coactos se, ne eadem, quae Saguntini passi sint, patiantur, defecturos et cum ceteris potius Hispanis quam solos perituros esse.

(25)

LATIN

Higher Grade—(Second Paper)

Monday, 28th March—1.0 p.m. to 3.0 p.m.

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

N.B.—Begin the answer (or fair copy of an answer) to each question on a fresh page. Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing.

1. Translate into Latin prose :—

There came to Hannibal from Tarentum five young nobles, who had been taken prisoners, some at Cannae, the others at Lake Trasimennus, and had been sent back to their homes unharmed. They told him that, remembering his kindness, they had prevailed upon most of their fellow-citizens to prefer his friendship and alliance to that of Rome. " We have come," said they, " to beg you to move your army nearer to Tarentum. If once your banners and your camp are seen from the city, it will surrender to you without delay." Hannibal, who had long been anxious to gain possession of a city so powerful and so rich, praised them

warmly, loaded them with gifts, and bade them return to Tarentum, assuring them that he would arrive there in a few days. After a vain attempt to take Nola, he set off in the silence of night for Tarentum, and encamped about a mile from the walls. But when none of the five nobles either came themselves or sent him any message, he realised that he had been led there by an idle promise. **(35)**

2. Translate into Latin :—

(1) In the middle of summer the cold was so intense that almost all my roses were destroyed.

(2) Let us tell them that, unless they depart at once from the city, they will be handed over to the enemy.

(3) I ought to have remained there longer to learn more about his crimes.

(4) Few understand why we, who live in a very small island, are envied by other nations.

(5) Although he threatened the slaves with death, they would not say whether they had hidden the boy or killed him.

(6) Three days ago I asked your sister when you were to arrive here. She replied that neither she nor anybody knew. **(20)**

3. (*a*) Give the first supine of agnosco, haurio, consentio, contorqueo, aufero, perfringo.

(*b*) Give the Latin for :— each of two ; on the following morning ; in the consulship of Titus Quintius ; how many sons have you ? **(5)**

GREEK

Lower Grade

Friday, 25th March—9.30 A.M. to 12 NOON

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

N.B.—Begin the answer (or fair copy of an answer) to each question on a fresh page. Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing.

1. Translate into English :—

(*a*) *Surrounded and attacked by Thracians, a Greek army is in a sore plight.*

Οἱ δὲ Θρᾷκες πρῶτον μὲν τῷ Σμίκρητος λόχῳ[1] ἐπιτίθενται· καὶ αὐτὸν μὲν Σμίκρητα ἀποκτείνουσι, καὶ τοὺς ἄλλους πάντας· ἄλλου δὲ λόχου τῶν δέκα στρατηγῶν ὀκτὼ μόνους κατέλιπον. ἐπεὶ δὲ ηὐτύχησαν τοῦτο τὸ εὐτύχημα, συνεβόων ἀλλήλους τῆς νυκτός. καὶ ἅμα ἡμέρᾳ κύκλῳ περὶ τὸν λόφον, ἔνθα οἱ Ἕλληνες ἐστρατοπεδεύοντο, ἐτάττοντο καὶ ἱππεῖς πολλοὶ καὶ πελτασταί, καὶ ἀεὶ πλείονες συνέρρεον. καὶ προσέβαλλον πρὸς τοὺς ὁπλίτας ἀσφαλῶς· οἱ μὲν γὰρ Ἕλληνες οὔτε τοξότην εἶχον οὔτ' ἀκοντιστὴν οὔθ' ἱππέα· οἱ δὲ προσθέοντες καὶ προσελαύνοντες ἠκόντιζον· ἄλλοι δὲ ἄλλῃ ἐπετίθεντο. καὶ τῶν μὲν πολλοὶ ἐτιτρώσκοντο, τῶν δὲ οὐδείς· τελευτῶντες δὲ καὶ ἀπὸ τοῦ ὕδατος εἶργον[2] αὐτοὺς οἱ Θρᾷκες. ἐπεὶ δ' ἀπορία πολλὴ ἦν, διελέγοντο περὶ σπονδῶν. καὶ τὰ μὲν ἄλλα ὡμολόγητο αὐτοῖς, ὁμήρους[3] δ' οὐκ ἐδίδοσαν οἱ Θρᾷκες αἰτούντων τῶν Ἑλλήνων. (30)

[1] λόχος = company.
[2] εἴργω = hinder, cut off.
[3] ὅμηρος = hostage.

(*b*) *An informer discloses to the Ephors a plot of which Cinadon is the author. They ask how he comes to know about it.*

Ἐντὸς δὲ πένθ' ἡμερῶν καταγορεύει τις πρὸς τοὺς ἐφόρους ἐπιβουλὴν καὶ τὸν ἀρχηγὸν τοῦ πράγματος Κινάδωνα. ἐρομένων δὲ τῶν ἐφόρων πῶς φαίη τὴν πρᾶξιν ἔσεσθαι, εἶπεν ὁ εἰσαγγείλας ὅτι ὁ Κινάδων ἀγαγὼν αὐτὸν ἐπὶ τὸ ἔσχατον τῆς ἀγορᾶς ἀριθμῆσαι κελεύοι ὁπόσοι εἶεν Σπαρτιᾶται ἐν τῇ ἀγορᾷ. καὶ ἐγώ, ἔφη, ἀριθμήσας βασιλέα τε καὶ ἐφόρους καὶ γέροντας καὶ ἄλλους ὡς τετταράκοντα, ἠρόμην· Τί δή με τούτους, ὦ Κινάδων, ἐκέλευσας ἀριθμῆσαι; ὁ δὲ εἶπε· Τούτους, ἔφη, νόμιζέ σοι πολεμίους εἶναι, τοὺς δ' ἄλλους πάντας συμμάχους πλέον ἢ τετρακισχιλίους ὄντας τοὺς ἐν τῇ ἀγορᾷ. ἐπιδεικνύναι δ' αὐτὸν ἔφη ἐν ταῖς ὁδοῖς ἔνθα μὲν ἕνα, ἔνθα δὲ δύο πολεμίους ἀπαντῶντας,[1] τοὺς δ' ἄλλους ἅπαντας συμμάχους. (20)

[1] ἀπαντῶ = meet

2. Translate into Greek :—

(1) On that day many Persians were killed by the Greeks.

(2) Our ships were captured while the generals were in the city.

(3) Let us ask them whose book this is.

(4) The old women were so poor that we gave them money.

(5) I ordered my sons not to obey the schoolmaster.

(6) We thought that you knew all these things.

(7) One of the sailors said he wished to speak about you.

(21)

3. (*a*) Give the genitive singular of στρατιώτης, ναῦς, κύων, βοῦς, κῆρυξ, χειμών.

(*b*) Give the nominative singular masculine of the superlative of παλαιός, σαφής, ταχύς, πολύς, δεινός.

(*c*) Give the nominative singular masculine of the aorist participle active of τίθημι, ὁρῶ, αἱρῶ, διατελῶ, δίδωμι, τυγχάνω, σιγῶ. **(9)**

GREEK

Higher Grade—(First Paper)

Friday, 25th March—9.30 A.M. to 12 NOON.

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

N.B.—Begin the answer (or fair copy of an answer) to each question on a fresh page. Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing.

Translate into English :—

1. *Diogeiton had embezzled money deposited with him by his dead brother Diodotus. Diodotus's widow and children, now in great distress, claim the money, and ask the speaker's help.*

Οἱ δὲ παῖδες, παραλαβόντες τὴν μητέρα, ἦκον πρὸς ἐμέ, κλαίοντες καὶ παρακαλοῦντές με βοηθῆσαι. πολὺ ἂν εἴη ἔργον λέγειν ὅσον πένθος ἐν τῇ ἐμῇ οἰκίᾳ ἦν ἐν ἐκείνῳ τῷ χρόνῳ.

τελευτῶσα δὲ ἡ μήτηρ αὐτῶν ἱκέτευεν ἐμὲ συναγαγεῖν αὐτῆς τὸν πατέρα καὶ τοὺς φίλους, εἰποῦσα ὅτι, εἰ καὶ πρότερον μὴ εἴθισται λέγειν ἐν ἀνδράσι, τὸ μέγεθος αὐτὴν ἀναγκάσει τῶν συμφορῶν περὶ τῶν σφετέρων κακῶν δηλῶσαι πάντα πρὸς ἡμᾶς. ἐλθὼν δ' ἐγὼ ἠγανάκτουν μὲν πρὸς Ἡγήμονα τὸν ἔχοντα τὴν τούτου θυγατέρα, λόγους δ' ἐποιούμην πρὸς τοὺς ἄλλους ἐπιτηδείους, ἠξίουν δὲ τοῦτον εἰς ἔλεγχον ἰέναι περὶ τῶν πραγμάτων. Διογείτων δὲ τὸ μὲν πρῶτον οὐκ ἤθελε, τελευτῶν δὲ ὑπὸ τῶν φίλων ἠναγκάσθη. ἐπειδὴ δὲ συνήλθομεν, ἤρετο αὐτὸν ἡ γυνή, τίνα ποτε ψυχὴν ἔχων ἀξιοῖ περὶ τῶν παίδων τοιαύτῃ γνώμῃ χρῆσθαι, "ἀδελφὸς μὲν ὢν τοῦ πατρὸς αὐτῶν, πατὴρ δ' ἐμός, θεῖος δὲ αὐτοῖς. καὶ εἰ μηδένα ἀνθρώπων ᾐσχύνου, τοὺς θεοὺς ἐχρῆν σε", φησί, "δεδιέναι, ὃς ἔλαβες μὲν πέντε τάλαντα παρ' αὐτοῦ παρακαταθήκην."

(35)

2. *The consternation of the Athenians at the loss of Euboea, and the great danger in which they now were.*

Τοῖς δὲ Ἀθηναίοις ὡς ἦλθε τὰ περὶ τὴν Εὔβοιαν γεγενημένα, ἔκπληξις μεγίστη δὴ τῶν πρὶν παρέστη. οὔτε γὰρ ἡ ἐν τῇ Σικελίᾳ ξυμφορά, καίπερ μεγάλη τότε δόξασα εἶναι, οὔτε ἄλλο οὐδέν πω οὕτως ἐφόβησεν. ἐπειδὴ γὰρ ναῦς τε καὶ τὸ μέγιστον Εὔβοιαν ἀπωλωλέκεσαν, ἐξ ἧς πλείω ἢ ἐκ τῆς Ἀττικῆς ὠφελοῦντο, πῶς οὐκ εἰκότως ἠθύμουν; μάλιστα δ' αὐτοὺς ἐθορύβει, εἰ οἱ πολέμιοι τολμήσουσι νενικηκότες ἐπὶ τὸν Πειραιᾶ ἐρῆμον ὄντα νεῶν πλεῖν· καὶ ὅσον οὐκ ἤδη ἐνόμιζον αὐτοὺς παρεῖναι. ὅπερ ἄν, εἰ τολμηρότεροι ἦσαν, ῥᾳδίως ἂν ἐποίησαν, καὶ ἢ διέστησαν ἂν ἔτι μᾶλλον τὴν πόλιν ἐφορμοῦντες ἢ, εἰ ἐπολιόρκουν μένοντες, καὶ τὰς ἀπ' Ἰωνίας ναῦς, καίπερ πολεμίας οὔσας τῇ ὀλιγαρχίᾳ, ἠνάγκασαν ἂν τοῖς σφετέροις οἰκείοις καὶ τῇ ξυμπάσῃ πόλει βοηθῆσαι· καὶ ἐν τούτῳ Ἑλλήσποντός τε ἂν ἦν αὐτοῖς καὶ Ἰωνία καὶ αἱ νῆσοι καὶ τὰ μέχρι Εὐβοίας καὶ ὡς εἰπεῖν ἡ Ἀθηναίων ἀρχὴ πᾶσα.

(30)

3. **Either** (*a*) **or** (*b*)

(*a*) *The suitors are considering whether they should kill Telemachus.*

Ὣς ἔφαθ', οἱ δ' ἄρα πάντες ἀκὴν ἐγένοντο σιωπῇ.
τοῖσιν δ' Ἀμφίνομος ἀγορήσατο καὶ μετέειπεν,
Νίσου φαίδιμος υἱός, Ἀρητιάδαο ἄνακτος,
ὅς ῥ' ἐκ Δουλιχίου πολυπύρου,[1] ποιήεντος,[2]
ἡγεῖτο μνηστῆρσι, μάλιστα δὲ Πηνελοπείῃ
ἥνδανε μύθοισι· φρεσὶ γὰρ κέχρητ' ἀγαθῇσιν·
ὅ σφιν ἐυφρονέων ἀγορήσατο καὶ μετέειπεν·
"ὦ φίλοι, οὐκ ἂν ἐγώ γε κατακτείνειν ἐθέλοιμι
Τηλέμαχον· δεινὸν δὲ γένος βασιλήϊόν ἐστι
κτείνειν· ἀλλὰ πρῶτα θεῶν εἰρώμεθα βουλάς.
εἰ μέν κ' αἰνήσωσι Διὸς μεγάλοιο θέμιστες,
αὐτός τε κτενέω τούς τ' ἄλλους πάντας ἀνώξω·
εἰ δέ κ' ἀποτρωπῶσι θεοί, παύσασθαι ἄνωγα."
ὣς ἔφατ' Ἀμφίνομος, τοῖσιν δ' ἐπιήνδανε μῦθος.
αὐτίκ' ἔπειτ' ἀνστάντες ἔβαν δόμον εἰς Ὀδυσῆος,
ἐλθόντες δὲ καθῖζον ἐπὶ ξεστοῖσι θρόνοισιν.

[1] = rich in wheat.
[2] = grassy.

Scan the third and fourth lines, marking the caesura in each. **(30)**

(*b*) *Dolon volunteers to go as a spy to the Greek fleet.*

ΕΚΤΩΡ τίς δῆτα Τρώων οἳ πάρεισιν ἐν λόγῳ[1]
θέλει κατόπτης ναῦς ἐπ' Ἀργείων μολεῖν;
τίς ἂν γένοιτο τῆσδε γῆς εὐεργέτης;
τίς φησιν; οὗτοι πάντ' ἐγὼ δυνήσομαι
πόλει πατρῴᾳ συμμάχοις θ' ὑπηρετεῖν.
ΔΟΛΩΝ ἐγὼ πρὸ γαίας τόνδε κίνδυνον θέλω
ῥίψας κατόπτης ναῦς ἐπ' Ἀργείων μολεῖν,
καὶ πάντ' Ἀχαιῶν ἐκμαθὼν βουλεύματα
ἥξω· ἐπὶ τούτοις τόνδ' ὑφίσταμαι πόνον.

[1] = at my speech.

ΕΚ. ἐπώνυμος μὲν κάρτα καὶ φιλόπτολις
Δόλων· πατρὸς δὲ καὶ πρὶν εὐκλεᾶ δόμον
νῦν δὶς τόσως ἔθηκας εὐκλεέστερον.
ΔΟ. οὐκοῦν πονεῖν μὲν χρή, πονοῦντα δ' ἄξιον
μισθὸν φέρεσθαι. παντὶ γὰρ προσκείμενον
κέρδος πρὸς ἔργῳ τὴν χάριν τίκτει διπλῆν.
ΕΚ. ναί, καὶ δίκαια ταῦτα κοὐκ ἄλλως λέγω.
τάξαι δὲ μισθόν, πλὴν ἐμῆς τυραννίδος.

Scan the last two lines, marking the caesura in each. (30)

GREEK

HIGHER GRADE—(SECOND PAPER)

Friday, 25th March—1.0 P.M. to 3.0 P.M.

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

N.B.—Begin the answer (or fair copy of an answer) to each question on a fresh page. Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing.

1. Translate into Greek :—

When they were at Abydos, Artabanus came to Xerxes and said, "O king, though you do not allow us to fear anything, listen to what I now wish to say to you. Cyrus subdued all Ionia except the Athenians. I advise you, therefore, not to lead any Ionians against Athens. Do you think that they will willingly assist you to enslave the city of their fathers? Will they not try to desert you and to disclose your plans to the Athenians? Even without them you will easily overcome all the Greeks." Remembering that Artabanus had formerly advised him not to invade Greece the king replied, "You are too fearful, Artabanus; I am not afraid that the Ionians will harm us. When Darius marched against the Scythians[1], it was in their power to destroy or to save his whole army. Yet they did him no harm. They have left their wives and their children in my hands. I know that on that account they will be faithful to me." (35)

[1] Scythians, Σκύθαι.

2. Translate into Greek :—

(1) We at once perceived that they thought themselves extremely courageous.

(2) Before you came, I had asked them if they were Greeks.

(3) Those slaves were set free on condition that they would not fight against us.

(4) You cannot prevent us from being very angry with our own children.

(5) I shall always be afraid of the Persians until I hear that their fleet has been destroyed. **(14)**

3. (*a*) Give the genitive singular of

νοῦς, ἐλπίς, λεώς, χιών, ἄνθος, χάρις.

(*b*) Give the aorist infinitive passive of

καθαιρῶ, ἀφίημι, ἐλαύνω, ἀνάγω, ἀκούω, τείνω. **(6)**

FRENCH

Lower Grade

Thursday, 24th March—9.30 A.M. to 12 NOON

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

N.B.—Begin the answer (or fair copy of an answer) to each question on a fresh page. Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing.

1. Translate into English :—

La Louée.[1]

"Te voilà grand, mon Gilbert," dit un jour Madame Cloquet à son fils, "tu as déjà onze ans, et il faut commencer à gagner ta vie. Nous irons donc à la louée de Bazolles, quoique je sois bien triste de me séparer de toi."

Le dimanche suivant, la louée se tint à Bazolles, comme d'ordinaire. La place était pleine de fermiers qui venaient chercher des domestiques, et de jeunesses qui cherchaient à "se louer." Les jeunes gens en quête d'une place de charretier avaient leur fouet pendu au cou ; ceux qui

[1] la louée = hiring-fair.

voulaient s'engager comme laboureurs mordaient une feuille verte ou la portaient à leur chapeau : les filles tenaient une rose à la main, et elles étaient pauvrement vêtues, de leur plus mauvaise robe, pour qu'on ne les crût point dépensières ; mais elles avaient toutes, cachés dans un coin de l'auberge voisine, une robe pour danser et un bout de ruban pour mettre à leurs cheveux.

Chacun avait amené un parent, sa mère, une tante ou un ami. Et Gilbert avait près de lui, bien inquiète, et les yeux rouges, sa vieille mère, qui était connue dans tout le pays pour une femme pauvre mais laborieuse et économe. Il était assurément l'un des plus jeunes de l'assemblée ; la plupart des domestiques avaient de quinze à vingt ans ; plusieurs même étaient des hommes faits, et le petit, immobile devant le débit de tabac,[1] se demandait s'il y aurait maître qui voulût de lui. *René Bazin.* (25)

[1] débit de tabac = tobacconist's shop.

2. Translate into English :—

Le jeu des marins.

Nous avions beaucoup de jeux, mais le plus beau de tous, c'était le jeu des marins. Nous ne pouvions y jouer tous les jours, mais seulement quand il faisait du vent. Alors nous partions dans la forêt, où il y avait un grand tilleul[1] très vieux. C'est là que nous grimpions. Le tilleul, c'était notre navire. Quand nous arrivions près de l'arbre, mon frère aîné commandait : " Tout le monde à bord ! " Et je criais à mon tour : " Tout le monde à bord ! " en courant aussi vite que je pouvais pour atteindre l'arbre et y monter ; mais chaque fois, c'était difficile, car les branches du tilleul étaient trop hautes pour moi ; mon frère, qui était déjà grimpé et se tenait sur la première fourche, devait me tendre la main pour me hisser.[2] Puis nous continuions de grimper, et l'arbre était maintenant notre mât. Et quand le vent le secouait, et le courbait de tous côtés, nous étions ravis de joie. Puis nous sortions nos mouchoirs, nous en prenions les quatre coins et les mettions au vent qui les gonflait comme de petites voiles. " Maintenant, nous marchons à la voile," disait mon frère. " Oh ! comme ça va vite ! " Et quand nous avions marché à la voile pendant quelque temps, nous regrimpions encore, toujours plus haut, presque jusqu'au sommet. *E. von Wildenbruch.* (25)

[1] le tilleul = lime tree. [2] hisser = to hoist up.

3. Translate into French :—

A long time ago there was a young man who lived with his wife in a little village near the mountains. All the children knew him well, because he often played with them and told them stories. Unfortunately he was lazy, and his wife was always scolding[1] him, and telling him that they would die of hunger. To escape[2] from his wife, he sometimes took his gun and went into the woods with his dog. One day he sat down under a tree to rest. Suddenly he heard a voice. He looked everywhere, but at first he saw no one. Then an old man appeared, bent[3] under the weight of something he was carrying on his back. **(20)**

[1] to scold = gronder. [2] to escape = échapper (à).
[3] bent = courbé.

4. Translate into French :—

(1) My father is very ill ; the doctor comes to see him every day.

(2) Take this letter to the post, please. I am tired and very busy.

(3) Where have you been ? I have been waiting for you since four o'clock.

(4) What fine apples ! Tell me where you bought them.

(5) He hopes to spend his holidays in France with some of his friends. **(10)**

FRENCH

Higher Grade—(First Paper)

Thursday, 24th March—9.30 A.M. to 11.30 A.M.

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

N.B.—Begin the answer (or fair copy of an answer) to each question on a fresh page. Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing.

Translate carefully, with due attention to English form and expression.

1. *L'Angleterre après la guerre.*

Ainsi ce pays, qui est courageux et fort à tant d'égards, comme il l'a montré magnifiquement pendant la guerre, n'a pas pu se résoudre à se mettre sérieusement au travail. Le

sport, son divertissement préféré, réclame une part vraiment effrayante de l'énergie de la nation. Un match est un événement national, qui vide bureaux et ateliers, monopolise l'attention générale, éclipse sans conteste tout autre souci. " Désastre national," écrivent en caractères énormes les manchettes[1] des journaux. S'agit-il des deux millions de chômeurs[2] ou de la chute des exportations ? Non, simplement de la défaite d'une équipe de cricket ! Quand on parcourt l'Angleterre, on y rencontre, même en pleine semaine, avec une fréquence qui ne peut manquer de frapper l'attention, des meetings sportifs réunissant des milliers de spectateurs : n'ont-ils donc rien à faire pour s'accorder aussi généreusement des vacances ? Je ne voudrais pas exagérer, mais on pense malgré soi à Byzance, qui se passionnait aux jeux du cirque quand l'ennemi était aux portes de la capitale. *André Siegfried.* (25)

[1] manchettes = head-lines.
[2] chômeurs = unemployed.

2. *Contes de fées.*

Le grand-père Morvan a trois petits garçons,
Trois beaux petits garçons d'Anne, sa fille aînée.
Il a rappris pour eux son cahier de chansons :
Pour eux, le soir venu, devant la cheminée,
Il invente à loisir quelque conte émouvant,
Et, pareil au rouet[1] qui murmure sans trêve,
Pour ses petits garçons, le bonhomme Morvan,
Recommence dix fois, quand l'histoire est trop brève.
Oh ! les récits touchants ! Il en sait où les nains
S'en vont au clair de lune en invisibles rondes,
Où les géants barbus dans leurs énormes mains
Comme des osselets[2] font tournoyer des mondes.
Les trois petits garçons, les bras croisés, assis
Sur des sièges très hauts, ont l'air d'anges en pierre.
Quand le héros du conte a de cruels soucis,
Une larme se pose au bord de leur paupière ;
Mais quand, par un bon tour,[3] il sort d'un mauvais pas,
Ce sont des rires fous et des cris de victoire
Dont la vieille maison tremble du haut en bas !
Le bonhomme est content et redit son histoire.

Eugène Le Mouel. (25)

[1] rouet = spinning wheel.
[2] osselet = knuckle-bone.
[3] tour = device.

3. *Au cœur de la forêt.*

Ainsi que tous les enfants du voisinage, je grimpais comme un écureuil. Des fois, lorsque je trouvais un grand arbre sur la cime d'une haute butte,[1] je montais jusqu'au faîte, et je regardais l'immensité des bois qui s'étendaient à perte de vue. Çà et là, dans une éclaircie, une maison isolée sur la lisière de la forêt, un clocher pointu au-dessus des masses sombres des bois, ou la fumée d'une charbonnière,[2] flottant lourdement comme une brume épaisse dans les petites vallées. Autour de moi, nul bruit : quelquefois seulement, le battement d'ailes d'un oiseau effarouché, ou le frôlement des feuilles quand un renard passait dans le fourré. Puis, quand venait le midi, l'Angélus tintait à tous les clochers d'alentour, et la musique de toutes ces cloches s'épandait sur la forêt silencieuse. Je restais là, perché sur mon arbre, des heures, rêvant à ces choses vagues qui passent dans les têtes d'enfants, aspirant les senteurs qui montaient de la forêt, écoutant le coucou chanter au fond des bois, et, plus loin, un autre lui répondre, comme un écho affaibli. *Eugène Le Roy.* **(20)**

[1] butte = knoll.
[2] charbonnière = charcoal kiln.

FRENCH

Higher Grade—(Second Paper)

Thursday, 24th March—1.0 p.m. to 1.30 p.m.

This paper must not be seen by any candidate.

To be read out by the Teacher at 1.0 *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. *Inform the candidates that they may not ask for the repetition of any word or phrase.*
2. *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.*
3. *Then dictate the passage slowly, saying each group of words (as indicated by vertical lines) twice, and pronouncing every word very distinctly. The punctuation should be indicated thus :—* (,) *'virgule,'* (.) *'un point,'* (:) *'deux points,'* (;) *'point virgule.'*
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

South-Germany

Le midi de l'Allemagne | est très bien cultivé ; | cependant il y a toujours | dans les plus belles contrées | de ce pays | quelque chose de sérieux, | qui fait plutôt penser au travail | qu'aux plaisirs, | aux vertus des⁀habitants | qu'aux charmes de la nature. | Les débris des châteaux | qu'on⁀aperçoit | sur le haut des montagnes, | les maisons bâties de terre, | les fenêtres⁀étroites, | les neiges qui, | pendant l'hiver, | couvrent les plaines⁀à perte de vue, | causent⁀une impression pénible. | Je ne sais quoi de silencieux, | dans la nature et dans les⁀hommes, | serre d'abord le cœur. | Il semble | que le temps marche là | plus lentement qu'ailleurs, | que la végétation | ne se presse pas plus dans le sol | que les⁀idées dans la tête des⁀hommes, | et que les sillons réguliers du laboureur | y sont tracés | sur une terre pesante. | Néanmoins, | quand⁀on a surmonté | ces sensations⁀irréfléchies, | le pays⁀et les⁀habitants | offrent⁀à l'observation | quelque chose d'intéressant | et de poétique : | on sent que des⁀âmes | et des⁀imaginations douces | ont⁀embelli ces campagnes. | (10)

FRENCH

HIGHER GRADE—(SECOND PAPER)

Thursday, 24th March—1.45 P.M. to 3.45 P.M.

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

N.B.—Begin the answer (or fair copy of an answer) to each question on a fresh page. Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing.

1. Translate into French :—

Miss Spencer went to get the Countess's coffee. I remained alone in the little parlour ; I wanted to learn more. At the end of five minutes the Countess's pupil entered the room. He stood at the door for a moment looking at me with his mouth open, and I saw he was a very simple young man.

" She wants to know if you won't come out into the garden ? " he said at last. " She has asked me to bring you."

I went out with him, and we found the Countess sitting under one of the little trees in front of the house. She was drawing a needle through the piece of embroidery[1] which she had taken from the small table. She pointed graciously to the chair beside her and I sat on it. Mr. Mixter glanced about him, and then sat down on the grass at her feet.

" I am sure you speak French," said the Countess. " I do, madam," I answered. " *Voilà !* " she cried. " I knew it as soon as I looked at you. You have been in my poor dear country ? " " A long time." " You know Paris ? " " Very well, madam."

Then she looked at her attentive pupil and asked him what we were talking about. He hesitated, blushed a little, and then said : " You are talking French."

" My word ! " said the Countess. " I have been giving him lessons for ten months and that's all he knows. Don't be afraid to say what you think of him ; he won't understand you." **(40)**

[1] Piece of embroidery = broderie (*f*).

2. Translate into French :—

(1) Here is a letter John sent me. I hear from him occasionally.

(2) Can you tell me the exact time? My watch does not go very well.

(3) I could not help admiring his extraordinary skill.

(4) Put out all the lights before you go to bed.

(5) Take your umbrella. I think it is going to rain before long. (10)

3. Write, in French, a continuous story, based on the following summary. **The story should be about the same length as your answer to question 1.** Failure to comply with this instruction may lead to a loss of marks.

Un mendiant aveugle dans la rue—tend sa petite boîte et crie, "Ayez pitié d'un pauvre aveugle"—un gamin lui prend sa boîte et se sauve en courant—le mendiant oublie qu'il est aveugle, et le chasse. (20)

(*Complete the story in your own way.*)

GERMAN

Lower Grade

Tuesday, 29th March—9.30 A.M. to 12 NOON

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

N.B.—(1) Begin the answer (or fair copy of an answer) to each question on a fresh page. Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing. (2) German script must be used in the answer to question 4 ; in question 3 the use of it is optional.

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

A Walk.

Bald nach Oſtern hatte eine plötzliche Erkrankung meiner Mutter mich nach Hauſe gerufen. Erſt im Auguſt, da ich die völlig Geneſene mit Ruhe der Sorge meines Vaters und der Heilkraft der milden Lüfte überlaſſen konnte, kehrte ich auf

die Universität zurück. Als ich fortreiste, war auf der weiten Seebucht neben der Stadt noch kaum das Eis verschwunden; nun rauschte über allen Wegen das volle Laub des Sommers.

Es war am Vormittage nach meiner Ankunft; von meinen Bekannten hatte ich noch keinen gesprochen. Ich stand nachdenklich in der Mitte meines einsamen Studentenstübchens; das ausgetrocknete Tintenfaß auf dem Schreibtisch und die bestaubten Bücher sahen mich unangenehm an; der halb ausgepackte Koffer auf dem Fußboden machte es nicht besser. Aber die Sonne schien durch die Fensterscheiben und lockte mich hinaus, und bald ging ich, wie ich es schon als Knabe liebte, nur mit mir allein, im Schatten der breiten Lindenallee, welche eine Strecke oberhalb des Wassers am Seestrande entlang führt.

Wie ein düsteres Gewölbe standen die ungeheuren Bäume über mir, während zu beiden Seiten auf Laub und Gräsern und in den Fenstern der hier überall im Grün versteckten Gartenhäuser die helle Morgensonne funkelte; mitunter, wo er durch die Büsche sichtbar wurde, traf auch ein Blitz des Meeresspiegels meine Augen. — Ich ging langsam weiter, die frische Luft mit vollen Zügen atmend; nur einzelne unbekannte Menschen begegneten mir, denn die Stunde des Spazierengehens hatte noch nicht geschlagen. **(25)**

2. Translate into English :—

In the Omnibus.

Ein Omnibus knarrt in dem Schnee,
Voll Menschen jeder Art,
So wie der Zufall manchmal sie
Zusammenpreßt und schart.(1)

Es bläst der Wind so grimmig kalt,
Die Fenster schließen schlecht,
Ein jeder ist verdrießlich drob(2)
Und keinem etwas recht.

Dort in der Ecke hält ein Mann
Ein Tütchen vor sich hin
So zärtlich und besorgt, als wär'
Ein Edelstein darin.

(1) = crowds together.
(2) = darob, darüber.

Zu seinem Nachbar einer sagt:
„Was doch in aller Welt
Der Mann dort in der Tüte hat,
Die er so sorgsam hält?"

Der hört die Frage, lächelt fein
Und zieht aus dem Papier
Ein Veilchen, eben aufgeblüht,
Und zeigt's dem Passagier.

Und wie es nun von Hand zu Hand,
Ein Gruß des Frühlings, geht,
So ist's, als hätt' der Freude Hauch
Sie alle angeweht.

Es tauen schnell die Herzen auf,
Und fröhlicher Gesang
Mischt mit des Windes Orgel sich
Den ganzen Weg entlang.

(25)

3. Translate into German :—

(1) The Scottish rivers are not so long as the German ones but they are just as beautiful.

(2) Lazy Fred always gets up so late that he has to run to school.

(3) When the train stopped we were very glad to get out.

(4) After thanking our kind friends we said "Goodbye," and hurried home.

(5) You must try to translate these short sentences without a mistake. (15)

4. Translate into German :—

The little old lady lived on the other side of the street in the house with the green garden gate. Every morning at eight o'clock when the church bells were ringing merrily she came down the white steps and opened the gate. She would stand for a few moments and look at the sky to see if this were clear. If it seemed probable that the weather would be fine she would go slowly along the road to church. As Mary did not know the lady's name she called her Mrs. Overtheway. (15)

GERMAN

HIGHER GRADE—(FIRST PAPER)

Tuesday, 29th March—9.30 A.M. to 11.30 A.M.

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

N.B.—Begin the answer (or fair copy of an answer) to each question on a fresh page. Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing.

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

1. *A Friendship of Boyhood Days.*

Auf dem Gymnaſium hatte ich einen Schulkameraden, einen fleißigen und geſchickten Menſchen, mit welchem ich, da er in meiner Nachbarſchaft wohnte, in faſt täglichem Verkehre lebte. Als er eben in die Sekunda eingetreten war, ſtarb der Vater, welcher ein kleines ſtädtiſches Amt bekleidet hatte, und hinterließ Sohn und Witwe in den bedrängteſten Umſtänden. — Mit Hilfe von Stipendien[1] hätte mein Freund deſſenungeachtet wohl ſeinen Plan die Rechte zu ſtudieren durchführen können; aber der lebhafte Wunſch ſchon jetzt etwas zu verdienen und dadurch die letzten Jahre ſeiner alternden Mutter zu erleichtern, veranlaßte ihn vom Gymnaſium abzugehen und auf dem dortigen Rathauſe als Schreiber einzutreten. Unſer Umgang wurde dadurch nicht unterbrochen; wir machten wie ſonſt des Mittags unſeren gemeinſchaftlichen Spaziergang, und abends ſaßen wir in dem von ihm und ſeiner Mutter bewohnten Zimmer und nahmen miteinander die Lektionen durch, welche am folgenden Tag in der Schule vorkommen ſollten; denn er hatte ſeine Lebenspläne keineswegs gänzlich aufgegeben, und wenn der Abend nicht reichte, nahm er unbedenklich die Nacht zu Hilfe. So habe ich manche Stunde dort verbracht in

[1] = Bursaries.

gemeinsamer Arbeit oder in gemütlichem Gespräch. Die Mutter pflegte mit ihrem Strickzeug neben uns zu sitzen. Ich sehe noch das stille, etwas kränkliche Gesicht, wenn sie mitunter mit einem Ausdruck der zärtlichsten Verehrung die Augen auf ihrem einzigen Kinde ruhen ließ. Es war eine Luft des Friedens und der Stille in diesem Zimmer, wie ich sie nirgends sonst empfunden habe. (25)

2. *The little Birch Tree.*

Ich weiß den Tag, es war wie heute,
Ein erster Maitag, weich und mild,
Und die erwachten Augen freute
Das übersonnte Morgenbild.

Der frohe Blick lief hin und wieder,
Wie sammelt er die Schätze bloß?
So pflückt ein Kind im Auf und Nieder
Sich seine Blumen in den Schoß.

Da sah ich dicht am Wegesaume
Ein Birkenbäumchen einsam stehn,
Rührend im ersten Frühlingsflaume,[1]
Konnt' nicht daran vorübergehn.

In seinem Schatten stand' ich lange,
Hielt seinen schlanken Stamm umfaßt,
Und legte leise meine Wange
An seinen kühlen Silberbast.[2]

Ein Wind flog her, ganz sacht, und wühlte
Im zarten Laub wie Schmeichelhand.
Ein Zittern lief herab, als fühlte
Das Bäumchen, daß es Liebe fand.

Und war vorher die Sehnsucht rege,
Hier war sie still, in sich erfüllt;
Es war, als hätte hier am Wege
Sich eine Seele mir enthüllt.

[1] Flaume = dress.
[2] Bast = bark. (20)

3. *Germany's natural Wealth.*

Die Natur hat das deutsche Land weder allzu üppig noch allzu kärglich versorgt. Wenn sie uns mit den melancholischen Nebeln, dem Schnee und Frost eines langen Winters nicht verschonte, so gab sie uns dagegen auch einen blütenreichen Frühling, früchtereifende Sommerwärme und eine klare, milde Herbstsonne. Der Übergang der kalten Jahreszeit in die warme und dieser in jene ist in der Regel kein schroffer, sondern ein stufenweises Vor- und Rückwärtsschreiten. Einige ganz unfruchtbare Striche abgerechnet, leistet der Boden für die Mühe seiner Bebauer mehr oder minder dankbaren Ersatz. Auf unübersehbaren Flächen wogen goldene Ährenfelder im Winde, Wälder von Obstbäumen wechseln mit wohlgepflegten Gemüsegärten, und an den sonnigen Halden klimmt die Weinrebe empor, welche edle Ausbeute gibt. Auch der unterirdische Reichtum unseres Bodens ist nicht klein, und wertvolle Gruben öffnen ihre Metallschätze dem Bergmann. Aber nicht nur das Notwendige gewährt uns die Natur; sie hat auch, dem regen Naturgefühl unseres Volkes entsprechend, für Schönheit und Schmuck gesorgt. **(25)**

GERMAN

Higher Grade—(Second Paper)

Tuesday, 29th March—1.0 p.m. to 1.30 p.m.

This paper must not be seen by any candidate.

To be read out by the Teacher at 1.0 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. *Inform the candidates—*
   (*a*) *That they may use either English or German script, as they prefer; and*
   (*b*) *That they may not ask for the repetition of any word or phrase.*
2. *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.*
3. *Then dictate the passage slowly, saying each group of words (as indicated by vertical lines) twice, and pronouncing every word very distinctly. The punctuation should be indicated thus—*(,) ‘ Komma ’, (.) ‘ Punkt ’.
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

The Thuringian Forest.

Der Thüringerwald | übt eine wahre Zauberheilkraft | auf das verwundete, | bedrängte Gemüt aus. | Wenn man die einsamen Gründe | mit dem Waldbache durchwandert, | fühlt man die tiefe Wahrheit | von Schillers Ausspruch, | daß auf den Bergen | die Freiheit wohnt. | Der Thüringerwald ist reich | an entzückenden Aussichten | und an Naturmerkwürdigkeiten. | Nirgends ist das Gebirge unwirtbar. | Seine Höhen | sind mit Holz freundlich bestanden, | ihre Wände | mit malerischen Felsen geziert. | Seine Täler sind saftig grün, | von hellen Bächen durchtanzt. | Ein schönes, grünes Blatt ist es, | das sich Deutschland | zu Schmuck und Zierde | an seine Brust gesteckt hat. | Quellen und Ströme | gehen von ihm aus, | goldglühend und prächtig. | In überraschender Weise | finden die Reize dieser Gegend | von Jahr zu Jahr | immer mehr die verdiente Anerkennung. | (10)

GERMAN

HIGHER GRADE—(SECOND PAPER)

Tuesday, 29th March—1.45 P.M. to 3.45 P.M.

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

N.B.—Begin the answer (or fair copy of an answer) to each question on a fresh page. Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing. German script must be used in the answer to question 1; in the other questions the use of it is optional.

1. Translate into German :—

I hurried through the gateway and entered the castle garden, my heart trembling with hope and fear. I seemed to hear a noise near me and shuddered, but on looking around I could discover nobody. As I went cautiously forward I became aware of a sound which resembled distant footsteps, but since there was still nothing to be seen I thought my ears must have deceived me. After some time, despite my anxiety, I followed the well-known paths and reached the front part of the building. At first sight I could scarcely recognize my former home : no sign of life was now apparent in that huge sombre dwelling. I had just sat down on a wooden bench which stood in the sunny space before the entrance, when the door opened and the Count himself stepped forth. I looked up and to my amazement observed that he held in his hand that mysterious letter which had caused me such trouble and suffering. Although I wanted to beg for mercy I could find no words, and I remained motionless, gazing at that cruel face. **(40)**

2. (*a*) Translate into German :—

(1) If he has really refused to help his friends he will regret it.

(2) I have been told that they have succeeded in doing it.

(3) Not a single day passes but something unexpected happens.

(*b*) Translate into English :—

(1) Dieſer Schein iſt während des Aufenthaltes im Rathauſe aufzubewahren und auf Verlangen dem Beamten vorzuzeigen.

(2) Die Zeitſchrift „Leibesübungen und körperliche Erziehung" wird monatlich herausgegeben. (10)

3. Write in German a continuous story based on the following summary. **The story should be about the same length as your answer to question 1.** Failure to comply with this instruction may lead to a loss of marks :—

Auf einer Wanderung.

Mann auf einer Fußwanderung—einſame Gegend—eines Tages Spaziergang beſonders lang—durch Wetter und Verirrung verſpätet—endlich kleines Dorf—kein Gaſthof—ſucht Unterkunft bei Dorfleuten—ungern empfangen—der Fremde ſieht Photographie—erkennt Univerſitätsfreund—Erklärung. (20)

GAELIC

Lower Grade

Tuesday, 29th March—9.30 A.M. to 12 NOON

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

N.B.—Begin the answer (or fair copy of an answer) to each question on a fresh page. Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing and for bad spelling.

1. Translate into English, paying careful attention to idiom :—

Choisinn ar n-aithrichean dhaibh fhéin cliù air muir agus air tìr, agus le fuil an cridhe choisinn iad dhuinne an t-saorsa agus an tèaruinnteachd a tha sinn a' sealbhachadh

air an là an diugh. Is iomadh cath cruaidh agus fuilteach a chuir iad, a chum iad féin, an teaghlaichean, am fearann agus an cuid a dhìon o na spùinneadairean Tuathach, Ròmanach, Greugach, agus Sasunnach. Bha na Gàidheil uair fodha agus uair air uachdar, ach riamh cha do strìochd iad do chumhachd an nàimhdean. Le gaisgealachd, le treubhantas agus le dìlseachd do an ceannardan shaor iad iad-féin, uair an déidh uair, o chuing a' choigrich, agus ged a dh' fhaodadh buidheann dhiubh an sud is an so a bhi ag cur a mach air a chéile, agus ag cath an aghaidh a chéile, gidheadh, an aghaidh an nàmhaid choitchinn bha iad dìleas d'a chéile agus aontachail mar aon duine. Bha còirichean aca r'an dìon, agus gu gaisgeil an aghaidh chumhachdan nàimhdeil, sheas iad a suas a chum nach bitheadh na còirichean sin air an toirt uapa.

An Deo-Gréine. **(20)**

2. Translate into English, paying careful attention to idiom :—

Fanaibh-se, a chlann, air a' chòmhnard,
A' buain neòinean feadh nan tom ;
No, ma's feàrr a' chulaidh chleas e,
Ruithibh greis am beul nan tonn.

Dìridh mise 'n àird am bruthach,
Far am faic mi chugam 's uam ;
Is bho'n a tha mi gann de chuideachd,
Eisdidh mi ri guth a' chuain.

Tha an cuan domhsa mar fhear-eòlais,
Tighinn am chòmhdhail air an tràigh ;
Fiamh a ghàir' air aodann preasach,
'S a thuinn bheaga cur orm fàilt'.

Is tric 's na laithean a chaidh seachad
Bheachdaich mi air cruth nan stuadh,
Tighinn chum teachdaireachd na mara
Liobhairt air a' chladach chruaidh.

A bhith beachdachadh orr' daonnan,
Le'n ceòl caochlaideach am chluais,
Dh'fhàg air m' inntinn samhladh mórachd,
Nach dèan briathra beòil a luaidh.

Domhnall MacEacharn. **(20)**

3. Translate into Gaelic, paying careful attention to idiom :—

When this youth entered, O'Brien forbade any of those who were sitting to rise ; he saluted none of us, and we only made a low bow at a distance. I chanced to be one of those who were standing when he came in, and he took his seat near me, but immediately started up again and caused me to sit down by him upon a chest. I, at this time taking him to be only a passenger or some clergyman, presumed to speak to him with too much familiarity, yet still retained some suspicion he might be one of more note than he was said to be. He asked me if I was not cold in that habit (viz., the highland garb). I answered, I was so habituated to it that I should rather be so if I was to change my dress for any other. At this he laughed heartily.

Sanford Terry (*The Forty-Five*). (20)

4. Write in Gaelic a continuous story, based on the following summary and complete it in your own way. Give it a title. **The story should be about the same length as your answer to question 1.** Failure to comply with this instruction may lead to a loss of marks.

General Wade, once upon a time, met and conversed with an old Highlander who had been present at the battle of Killiecrankie. " What did you think of General Mackay?" asked General Wade. The old Highlander shook his head, adding, " He made a big blunder." " What was that?" asked Wade in astonishment. The old Highlander replied, " He placed the infantry in the middle, the cavalry on each of the wings and the baggage behind the line. If I know my fellow-countrymen, he should have placed the baggage in front."

(*Complete the story in your own way.*) (20)

GAELIC

HIGHER GRADE—(FIRST PAPER)

Tuesday, 29th March—9.30 A.M. to 11.30 A.M.

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

N.B.—Begin the answer (or fair copy of an answer) to each question on a fresh page. Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing and for bad spelling.

1. Translate into idiomatic English :—

Cuiridh a' chùís smaointean air an fheadhainn do'n gnàth a bhi ag gabhail beachd air cor agus atharraichean linntean—mar tha nithean a' dol á filleadh. Tha iongantas orra ciod è tha an dàn tachairt aig deireadh na crìche. Ach tha iad suidhichte am barail gu bheil càllachadh agus deagh-bheus air am freumhachadh anns an t-suidheachadh inntinn a bheir fainear luach an duine, mar bhall de'n bheairt-riaghlaidh, agus mar chreutair reusanta, làn de aignidhean a tha ag iarraidh sàsachaidh. Thionndaidh móran de'n t-seòl-nochdaidh, a bhàtar a' meas fallain anns an naoidheamh linn deug, a mach mi-fhallain anns an fhicheadamh linn, an uair a thog an Dàn filleadh eile de'n bhrat ; agus tha na feallsanaich agus daoine beachdail 'nan seasamh a nis air cnoc eile, a' feòrach 'nan inntinn mu nàdur na cloich-stéidhidh air an togar an caitheamh-beatha ùr mu'm bheil iad a' sìor sgrìobhadh. Ach cuireamaid sanas 'nan cluais gun robh air thalamh fada, fada roimh so, Neach a theagaisg an sluagh mar neach aig an robh cumhachd, agus chan ann mar na sgrìobhaidhean.

D. MacPhee (*An Deo-Gréine*). **(25)**

2. Translate into idiomatic English :—

Mi 'g éirigh 's a' mhaduinn
Gur beag m'aiteas ri sùgradh,
O'n dh'fhalbh uachdaran fearail
Ghlinne Garadh air ghiùlan :
'S ann am flaitheas na fàilte
Tha ceannard àillidh na dùthcha ;
Sàr choirnileir foinnidh,
Nach robh foilleil do'n chrùn thu.

Is mairg a tharladh roimh d' dhaoine,
'N uair thogte fraoch ri do bhrataich ;
Dh'éireadh stuadh an clàr t' aodainn
Le neart feirg' agus gaisgidh ;
Sud am pearsa neo-sgàthach,
An t-sùil bu bhlàithe gun ghaiseadh :
Gum biodh maoim air do nàimhdean
Ri linn duit spàinteach a ghlacadh.

Fhuair thu an cliù sin o thoiseach,
Is cha b' olc e ri innseadh ;
Craobh chosgairt 'sa' bhlàr thu,
Nach gabhadh sgàth roimh luchd phìcean,
No roimh shaighdearan dearga,
Ged a b' armailtean rìgh iad,
Le an ceannardan fuilteach,
Is le an gunnachan cinnteach.

Iain Lom Domhnallach. (25)

3. Turn carefully into Scottish Gaelic, *or* translate into English :—

Léaghtar go raibhe duine d'áirithe ag teitheadh rés an mbeathadhach d'a ngoirthear aon-adharcach, no gur thuit i ndeirc[1] domhain, áit i bhfaca crann, agus dá luchóig,—luchóg díobh bán agus an luchóg eile dubh, agus iad ag tochailt fhréimhe an chrainn ; agus do chonnairc dragún uathbhásach ar ghrinnioll na deirce ar tí é féin do shlugadh. Do chonnairc mar an gcéadna i sleasaibh na deirce ceithre cinn nathrach neimhe, agus iad ar tí a sháruighthe ; agus ré tógbháil a shúl suas, do chonnairc beagán meala ag sileadh do ghéagaibh an chrainn ; agus ar dearmad gach guaise i n-a raibhe, tug amus d'iarraidh milse na meala, gan féachain do'n ghuasacht i n-a raibhe. Féadtar a radh go fáthach[2] gurab é an duine úd, do bhí ag teitheadh, an peacthach ; an t-aon-adharcach, an bás ; an deirc, an domhan ; an crann, bile barr-úr na beathadh ; an dá luchóig, an lá agus an oidhche ; na cinn nathrach neimhe, na ceithre dúla d'a ndéantar an corp ; an dragún, an diabhal ; na braoin meala, an sólás saoghalta.

Geoffrey Keating (*Three Shafts of Death*). (15)

[1] *deirc*=a pit.
[2] *go fáthach*=by interpretation.

GAELIC

HIGHER GRADE—(SECOND PAPER)

Tuesday, 29th March—1.0 P.M. to 1.30 P.M.

This paper must not be seen by any candidate.

To be read out by the Teacher at 1.0 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. *Inform the candidates that they may not ask for the repetition of any word or phrase.*
2. *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.*
3. *Then dictate the passage slowly, saying each group of words (as indicated by vertical lines) twice, 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

Ma ghabhas sinn beachd, | eadhon sealladh aithghearr, | air eachdraidh an t-saoghail | o chionn còrr | agus mìle bliadhna, | chì sinn | gur ann o mhór-thìr na h-Eòrpa | a shruth an toradh, | agus a' bhuil as cudthromaiche | a dh'aindeoin lochdan a tha, | agus a bha aithnichte do'n t-sùil léirsinnich. | Mhothaich a' chuid | bu bheachdaile am measg nan cinneach | gun robh a h-uile rud as fhiach | am beatha agus am beus chreutairean | an crochadh ris a' chòmhraig | a thug a leithid | de chriothnachadh oillteil oirnn | —saibhreas nan linntean a thréig | maille ri ionmhas nan linntean a tha romhainn. | Is ann do bhrìgh | gun

deachaidh na nithean as fhiach | anns an ám a dh'fhalbh | a shàbhaladh, | a tha dòchas againn | a thaobh na tha ri teachd. | Air an aobhar sin | am feadh is a tha daoine | a' rùnachadh saoghal ùr a dhealbh, | cha chòir dhuinn | ar seann eachdraidh, | no ar seann bheul-oideas, | a tha cho làn de na h-euchdan | a rinneadh le ar n-aithrichean, | a mheas mar neo-bhrìgh. |

An Deo-Gréine. (10)

GAELIC

Higher Grade—(Second Paper)

Tuesday, 29th March—1.45 p.m. to 3.45 p.m.

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

N.B.—Begin the answer (or fair copy of an answer) to each question on a fresh page. Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing and for bad spelling.

Section I

All the questions in this Section should be attempted.

1. Write an essay in Gaelic, of not more than two pages in length, on any *one* of the following subjects :—
   (*a*) Is sona an croitear air an dùthaich seach am fear-ciùird anns a' bhaile mhór.
   (*b*) " Gu ma slàn do na fearaibh
   A chaidh thairis an cuan."
   (*c*) My favourite Gaelic author.
   (*d*) The benefits of outdoor school activities. (30)

2. Translate into Gaelic :—

Around the house, which stood on an eminence in the midst of a narrow Highland valley, there appeared none of that attention to convenience, far less to ornament and decoration, which usually surrounds a gentleman's habitation. An enclosure or two, divided by dry-stone walls, were

the only part of the domain that was fenced ; as to the rest, the narrow slips of level ground which lay by the side of the brook exhibited a scanty crop of barley, liable to constant depredations from the herds of wild ponies and black cattle that grazed upon the adjacent hills. These ever and anon made an incursion upon the arable land, which was repelled by the loud, uncouth and dissonant shouts of half a dozen Highland swains, all running as if they had been mad, and every one hallooing a half-starved dog to the rescue of the forage. At a little distance up the glen was a small and stunted wood of birch ; the hills were high and heathy, and without any variety of surface ; so that the whole view was wild and desolate, rather than grand and solitary.

Sir Walter Scott (*Waverley*). **(25)**

3. Translate into Gaelic :—

(*a*) I have a strong suspicion that my neighbour bears me a grudge, but I am not in the least afraid of him.

(*b*) Your father asked me to tell you not to wait for him, as he might be detained.

(*c*) The long winter nights are made cheerful by innocent amusements and telling of stories.

(6)

Section II

Two *questions should be attempted from this Section. The answers may be either in Gaelic or in English, except when otherwise indicated.*

4. Locate the following, giving in each case the anglicised equivalent :—Rubha Robhanais, Cill Rìbhinn, Baile Dhubhthaich, An Tòisigheachd, Coille Chnagaidh, Obar-pheallaidh, An Apainn. **(7)**

5. Give a short account of *two* of the following :—The Book of the Dean of Lismore, Duncan Lothian, Alasdair MacMhaighistir Alasdair, Uilleam Ros. **(7)**

6. Explain the significance of the following terms :—crònan, marbhrann, cumha, amhran. Mention by name a well-known example of each. **(7)**

7. Discuss shortly modern Gaelic drama and its possible advantages to the language. **(7)**

SPANISH

Lower Grade

Wednesday, 30th March—9.30 A.M. to 12 NOON

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

N.B.—Begin the answer (or fair copy of an answer) to each question on a fresh page. Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing.

1. Translate into English :—

A Spanish adventuress in the New World.

Catalina de Erauso nació en San Sebastián en 1592; se educó en un convento, y pronto se dio a conocer por la originalidad de su carácter y su amor casi salvaje a la libertad. Un día escaló los muros del convento y huyó. Disfrazada de hombre recorrió gran parte de España, viviendo como mejor podía, hasta que por fin embarcó en un galeón que partía para América. Estuvo empleada en una casa de comercio, sirvió en el despacho de un rico negociante, y tras una serie de aventuras extraordinarias se alistó como soldado. Entre peligros y hechos heroicos de toda clase cruzó toda América de un extremo a otro; en muchas ocasiones fue herida, pasó meses encarcelada, y escapó con tanta fortuna que su fama se extendió por todas partes. En cierta ocasión vendió su caballo, que tenía prestado, por 200 pesos, con los cuales se entró en una casa de juego, y habiendo perdido, provocó una disputa tal que acudieron las autoridades para prenderla. Con todos luchó Catalina, con tanta destreza que si no hubiera sido por la intervención del obispo acaso matara a todos. Años más tarde, volviendo de España, ancló en Veracruz una noche oscura y tempestuosa. El comandante del navío quiso sin embargo bajar a tierra, embarcándose en un bote con varios oficiales y Catalina. Llegó el bote sin accidente al desembarcadero, y los que en él iban penetraron en la ciudad ; pero notaron a poco que Catalina había desaparecido. Hiciéronse mil conjeturas ; se dijo que, aficionada a la vida errante, había penetrado de nuevo en el desierto ; creyeron otros que al desembarcar se había ahogado ; pero es lo cierto que se perdieron para siempre las huellas de tan singular existencia.

Bergua. (30)

2. Translate into English :—

Mr. Richman and Mr. Wiseman.

Entre dos vecinos surgió una disputa. Era el uno pobre, pero sabio ; el otro rico, pero ignorante. Quería éste ser estimado como el más importante, diciendo que toda persona razonable debía respetar a la riqueza. " Amigo mío," le decía con frecuencia, " os juzgáis persona estimable, pero decidme : ¿ coméis bien ? ¿ Cómo vivís ? ¿ De qué sirve a los sabios gastar los ojos leyendo sin cesar, si tienen que vivir siempre en tercer piso, y no tienen por criado más que su propia sombra ? ¿ Qué puede hacer para el bien común el hombre que no tenga dinero ? "

El otro calló ; pero mejor que lo hubiera hecho una sátira, le vengó una guerra que entonces sobrevino. Quedó destruida la ciudad, y tuvieron que abandonarla uno y otro. Al rico no le quedó nada de su riqueza, y sus amigos de antes le volvieron la espalda. El sabio encontró todas las puertas abiertas.

Vidal. **(20)**

3. Translate into Spanish :—

Of the two brothers, Peter was kind and John was clever. And John made money and became rich, so rich that he went off to the town. But Peter was always unlucky. He lent money to a neighbour, and the neighbour never paid it back. His horse broke its leg. His cow gave no milk. If his hens laid eggs, they were stolen. Each day saw him poorer than the day before. At last his wife said to him : " You must go to the town and see your rich brother." And he said : " Truly, wife, there is nothing else to be done. Give me my hat." **(20)**

4. Translate into Spanish :—

(1) I shall be waiting for you at the station on Tuesday morning.

(2) Nobody would like to go to school every day in the year.

(3) Instead of waiting till he comes you should write.

(4) It is very tragic that there should still be wars in the twentieth century.

(5) Don't say a word to anybody. Remember that walls have ears. **(10)**

SPANISH

Higher Grade—(First Paper)

Wednesday, 30th March—9.30 A.M. to 11.30 A.M.

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

N.B.—Begin the answer (or fair copy of an answer) to each question on a fresh page. Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing.

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

1. *A child's cry.*

" Esto del llanto de los niños," afirmó Travesedo, poniendo los codos sobre la mesa, " es una sensación puramente española. En Alemania olvidé que los niños lloran. Y si vieran ustedes, cuando volví a dar en ello, qué malestar tan grande me entró. Venía a pasar las vacaciones a España, en tercera clase, y aun así y todo, el dinero apenas si me llegaba. En la frontera tomé un tren mixto ; de esos trenes . . . En fin, un tren mixto español. Durante el día, todos los viajeros bebían como bárbaros y vociferaban como endemoniados. Al caer de la tarde el tren se había convertido en tren de mercancías, porque los hombres eran fardos, no personas. En cada estación, esas pobres estaciones castellanas en despoblado, el tren, que parecía un convoy funeral, se paraba veinte minutos. ¡ Qué silencio ! No era noche aún. Entre la tierra y el cielo flotaba una capa de polvo. Veíanse tres, cuatro árboles, de raro en raro, o un hombre montado en un pollino, sobre la línea del horizonte, que producían la ilusión óptica de ser gigantescos. Luego he tenido ocasión de observar muchas veces el mismo fenómeno : en España un pollino visto contra luz y en el horizonte, se agiganta sobremanera. Pues, a lo que iba : en una estación, Palanquinos, nunca se me olvidará, después de una parada eterna y en medio de un silencio abrumador, oigo llorar a un niño . . . Vamos, renuncio a expresar lo que en aquellos momentos sentí."

Pérez de Ayala. **(25)**

2. *Peter avoids his military service.*

Fue llamado el buen Pedro a ser soldado ;
pero, hombre sabio y sin ningún valor,
todo desconcertado,
la sentencia escuchó lleno de horror.
Y como en casa había
otro hermano más joven, que tenía,
como buen labrador, gustos sencillos,
gran corazón, gran pie, grandes carrillos,
y unos puños más grandes todavía,
el padre, por la madre aleccionado,
—" Si a Pedro le ha tocado ser soldado,
y tanto el traje militar le asusta,"—
pregunta a todos, de inocencia lleno,
—" ¿ hay cosa más sencilla y más justa
que vaya por él Juan, siendo tan bueno ? "—
Y nadie, por temor o hipocresía,
contra esta vil sustitución reclama.
Y pensándolo bien, Juan ¿ qué valía,
comparado con Pedro, que tenía
la ambición del saber y de la fama ?
Y el cura, el magistrado y el cirujano,
todo el género humano,
encuentra natural que Juan, gozoso,
sacrifique a la ciencia de su hermano
su fortuna, su amor y su reposo.

Campoamor. **(20)**

3. *Pascual describes how one becomes a count.*

Pascual. ¿ Pero qué piensas tú que hace falta para ser marqués ? ¡ Pues creérselo y nada más !

Felipe. ¡ Ay, qué gracioso !

Pasc. Pero ven acá. ¿ En qué se diferencia de mí un marqués, o un conde, o un vizconde ? ¿ No son todos de carne y hueso como yo ?

Fel. Eso sí.

Pasc. ¡ Pues claro ! Lo que pasa es que llega un día que va el Rey y llama a su ministro y le dice : " Oye, tú ; a don Fulanito de Tal, que es amigo mío, le voy a hacer una gracia." " No las merece," dice el ministro. " Ya lo sé, pero voy a decirle que es conde." " No se lo va a creer." " Sí, hombre, ya verás." Y va y llama a don Fulano, le da un pergamino, y ya está.

Fel. ¿ Cómo que ya está ?

Pasc. Que ya está. Al principio, a don Fulanito le extraña bastante, y cuando algún amigo le dice en broma: " Hola, señor conde," le da un poco de vergüenza y contesta: " ¡ Hombre, que me llamo Paco, no fastidies ! " Pero a los pocos días manda poner un escudo en una cortina, así como por broma. " ¡ Hombre, qué bonito ! " dice al verlo. " Que me borden así los pañuelos." Y poco a poco, poco a poco va plantando escudos en el papel, escudos en las tarjetas, escudos en la ropa blanca . . . Rompe la gente a decirle conde aquí y conde acullá . . . Total : que llega un día que se pone a escribir una carta al Rey pidiéndole audiencia, y como ya se le ha olvidado que se llama Paco, va y firma : " El Conde de Picopardo." Y entonces va y llama el Rey a su ministro y le dice : " ¿ No te lo dije ? Mira. ¡ Se lo creyó ! "

Múñoz Seca. (20)

SPANISH

HIGHER GRADE—(SECOND PAPER)

Wednesday, 30th March—1.0 P.M. to 1.30 P.M.

This paper must not be seen by any candidate.

To be read out by the Teacher at 1.0 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. *Inform the candidates that they may not ask for the repetition of any word or phrase.*
2. *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.*

3. *Then dictate the passage slowly, saying each group of words (as indicated by vertical lines) twice, and pronouncing every word very distinctly. The punctuation should be indicated thus :—*(,) *' coma,'* (.) *' punto,'* (;) *' 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.*

Dictation

El otoño había sucedido | a las galas de la primavera | y a las canículas | del verano, | y tendía ya su manto | de diversos colores | por entre las arboledas, | montes y viñedos. | Comenzaban a volar | las hojas de los árboles ; | las golondrinas se juntaban | para buscar otras regiones | más templadas, | y las cigüeñas, | describiendo círculos | alrededor de las torres | en que habían hecho su nido, | se preparaban también | para su viaje. | El cielo estaba cubierto | de nubes pardas y delgadas, | por medio de las cuales | se abría paso | de cuando en cuando | un rayo de sol, | tibio y descolorido. | Las primeras lluvias | de la estación, | que ya habían caído, | amontonaban en el horizonte | celajes espesos y pesados, | que adelgazados a veces | por el viento | y esparcidos entre las grietas | de los peñascos | y por la cresta | de las montañas, | figuraban otros tantos cendales | y plumas abandonados | por los genios del aire | en medio de su carrera. | **(10)**

SPANISH

Higher Grade—(Second Paper.)

Wednesday, 30th March—1.45 P.M. to 3.45 P.M.

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

N.B.—Begin the answer (or fair copy of an answer) to each question on a fresh page. Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing.

1. Translate into Spanish :—

The house where I was to stay was the most important in the village, because it was a tavern and had a telephone. Within there was a scene of great activity, and only at half-past eleven, when the tumult had died down, did the girls in the kitchen begin to prepare the supper for the guests. I went into the dining-room and sat at a small table in the corner so as to see everyone without being seen. At the large central table three women were seated. One of them was very fat, with a deep voice, and she spoke loudly about everything when she was not busy putting food in her mouth. She criticized the girls who were serving the dinner; she spoke ill of the cook; she asked for the priests; she blamed the behaviour of the young people : her resonant voice was heard through the whole house. I tried to hide in my corner, but I knew that sooner or later I should become a victim of her curiosity. She began by pointing me out to her companions; then she put a pair of spectacles on the end of her nose and examined me at her ease. Finally she came over to my table. (40)

Starkie.

2. Translate into Spanish :—

(1) It is easier than people think to travel abroad alone.

(2) Unless you are prepared to learn to obey, you must give up your career.

(3) The best things in life are often those that cost least.

(4) Sit down, please. I have news for you that perhaps you will not like.

(5) Another time this will not be allowed. It has happened too often already. (15)

3. Write in Spanish a continuous story based on the following summary. **The story should be about the same length as your answer to question 1.** Failure to comply with this instruction may lead to a loss of marks.

Un comerciante escocés viaja por España durante la guerra civil—para evitar dificultades, se provee de documentos del un gobierno—un día penetra, sin saberlo, en el territorio del otro—saca sus documentos —es detenido en seguida como espía—tras muchas aventuras consigue volver a Escocia. (20)

ITALIAN

Lower Grade

Wednesday, 30th March—9.30 A.M. to 12 Noon

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

N.B.—Begin the answer (or fair copy of an answer) to each question on a fresh page. Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing.

1. Translate into English :—

Il Sogno di Dante.

Fu quello il più dolce periodo della sua vita. La famiglia non era delle più ricche, ma possedeva la sua casa cittadina e qualche podere. Il giovane aveva dunque la libertà di attendere ai cari studi e alla poesia dalla quale poteva sperare di acquistar fama presso i suoi concittadini e i gentili uomini d'Italia. Diventare un poeta famoso era il suo sogno. Egli non era il signore ozioso che si diverte, il giovane che cerca nella vita soltanto il piacere. Odiava anzi queste persone inutili al mondo. Ma comporre delle belle e nobili poesie, esprimendo sentimenti generosi, offrendo la sua arte come il suo contributo di buon lavoro nella società civile, era una occupazione degna della dignità del suo animo. Gli uomini non vivono soltanto di cose materiali. La bellezza è necessaria come il pane e l'opera del poeta serve come l'opera del fabbro[1] e del mercante. E poi, chi molto sa molto può essere utile agli altri, perchè il sapere è la lampada che rischiara le vie della vita. E Dante non solo componeva versi ma si occupava di tutte quelle conoscenze che formavano al suo tempo l'uomo dotto.

Ettore Janni. **(25)**

[1] fabbro = smith.

2. Translate into English :—

Mario. Siamo ridiventati amici ?...

Anna. Sì...sì...amici...

Mario. Allora...se sono un amico...posso entrare. [*Ed entra.*]

Anna. Ma no !... Ma no !...

Mario. Pochi minuti... Il tempo di dirle addio...

Anna. L'addio è detto. Se ne vada... Come devo pregarla ?... Ho raccontato tutto in casa... Sono stata sgridatissima[1]... Ho annunciato la sua visita... Sono tutti curiosi di conoscerla... Se vuole, vada dall'altra parte, suoni il campanello, ed entri. Verrò io a riceverla... e se vuol tornare domani... l'aspetterò qui... Glielo prometto... Ma ora, no... A quest'ora no...

Mario. L'ora è divina... È più bella di stamattina...

Anna. Stia zitto... In questo silenzio si sentirebbe volare una farfalla[2]... Non capisce che tutti sono lì... Mi hanno chiamata... devo salire...

Mario. Un altro minuto per ridire addio...

Anna. Ma no, via... È assurdo...

Mario. La prego... La prego... È forse l'ultima volta...

Anna. E dopo, se ne andrà ?...

Mario. Subito... Per sempre...

Dario Niccodemi. (25)

[1] SGRIDATO = scolded.
[2] farfalla = butterfly.

3. Translate into Italian :—

(*a*) There are twelve months in a year, four weeks in a month, and seven days in a week.

(*b*) Here are the books I lost yesterday. Did you see them ?

(*c*) Those trees are much higher than that church.

(*d*) I shall come and visit your little brother and your little sister to-morrow morning.

(*e*) What is your uncle's name ? When is he coming here ?

(*f*) I like French very well ; will you teach me it ?

(*g*) Good morning, sir ; how are you to-day ?

(*h*) The Italian newspaper was on the round table.

(*i*) Perhaps the weather will be better next week. (15)

4. **Either** (*a*) Write a letter in Italian (of about the length of the passage in Question 1) inviting a friend to spend a day in town with you.

Or (*b*) Write an essay in Italian (of similar length) on " My Summer Holidays." (15)

MATHEMATICS

LOWER GRADE—(FIRST PAPER)

Tuesday, 22nd March—9.30 A.M. to 11.30 A.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 figures should be neatly drawn, and, where it is necessary to turn over a page during the answer to a question, a rough copy of the figure MUST *be drawn on the fresh page. 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.*

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

All the questions in this Section should be attempted.

1. Define a parallelogram, and prove that if the opposite sides of a quadrilateral are equal it is a parallelogram. **(10)**

2. Show that two tangents can be drawn to a circle from an external point, and prove that they are equal. **(12)**

3. Show, with proof, how to construct a square equal in area to a given rectangle. **(12)**

4. Prove that the internal bisector of an angle of a triangle divides the opposite side in the ratio of the two sides containing the angle. **(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. On the sides of a parallelogram $ABCD$, and outside the figure, are described equilateral triangles BAP, CBQ, DCR and ADS. Prove that P, Q, R and S form the vertices of a parallelogram. (Section I, 1.) **(18)**

6. From an external point A tangents AB and AC are drawn to a circle whose centre is O. Prove that AO bisects the chord of contact, BC, at right angles.

The tangent at P, any point on the minor arc BC, intersects AB and AC at Q and R respectively. Prove that twice the length of AB is equal to the perimeter of the triangle AQR. (Section I, 2.) (18)

7. The lengths of the sides AB, AD of a parallelogram $ABCD$ are 19 cm. and 13 cm. respectively, and that of the diagonal AC is 24 cm. Show that the angle B is obtuse, and calculate the length of the other diagonal BD. (18)

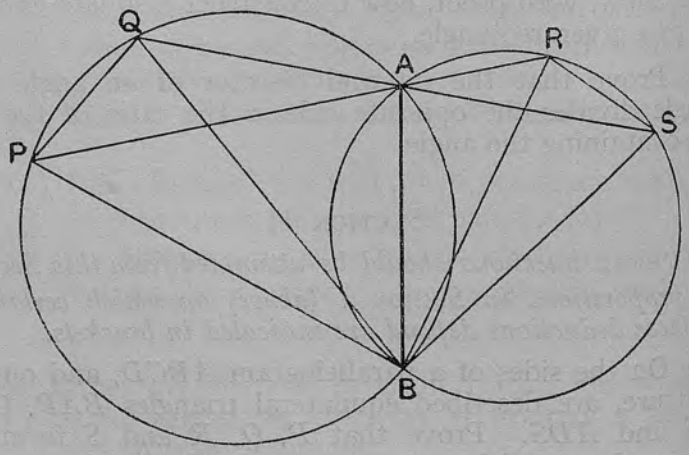
8. $PQRS$ is a rectangular sheet of cardboard of which PQ and QR measure 12 in. and 5 in. respectively. The cardboard is folded so that QP lies along QS, the crease meeting PS in G. Calculate the area of the trapezium $GQRS$. (Section I, 4.) (18)

9. In the accompanying diagram (which need not be copied in your examination book) two circles intersect in A and B, and PAR, QAS are drawn equally inclined to the common chord AB to meet the circumferences in P, R and Q, S respectively. Prove that—

(i) $\angle PQB = \angle SRB$;

(ii) triangles BPQ, BSR are isosceles and similar ;

(iii) $PR = QS$. (18)



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 clearly indicated.

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 the simple interest on £1,750 for 5 years 5 months at $4\frac{1}{2}$ per cent. per annum. **(12)**

2. Use your logarithmic tables to solve the following problems:—

(*a*) Evaluate $\dfrac{56{\cdot}23 \times 0{\cdot}0174}{0{\cdot}39}$;

(*b*) The distance d, in sea miles, of the horizon at sea from an observer at a height h feet is calculated from the formula

$$d = 1{\cdot}15\sqrt{h}.$$

Find d (i) in sea miles, (ii) in land miles, when h is 127. (A sea mile = 6,080 ft.; a land mile = 5,280 ft.) **(14)**

3. (*a*) Simplify

$$\frac{(4a^2 - 18b^2 + 21ab)(8a^2 + 9b^2 - 18ab)}{(16a^2 - 9b^2)(2a^2 - 18b^2 + 9ab)}.$$

(*b*) Solve the equations

(i) $\dfrac{2x - 3}{3(y + 1)} + \dfrac{4}{5} = 0,$

$7x + 9y = 0.$

(ii) $2x^2 - 6x + 1 = 0.$ (To two decimal places.)

(14)

4. Define the ratios $\sin\theta$, $\cos\theta$, $\tan\theta$, when θ is an acute angle, and prove that

$$\sin^2\theta + \cos^2\theta = 1.$$

Prove that

$$\frac{\cos\theta}{1 - \cos\theta} - \frac{\cos\theta}{1 + \cos\theta} = 2\left(\frac{1}{\sin^2\theta} - 1\right).$$

(12)

Section II

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

5. (*a*) Multiply $a^2 + 9b^2 + 4c^2 - 6bc + 2ca + 3ab$ by $a - 3b - 2c$.

(*b*) Given that $x - a$ and $x - b$ are factors of

$x^3 - 2(a + b)x^2 + (a^2 + 3ab + b^2)x - a^2b - ab^2$,

find the remaining factor. (16)

6. A box with no lid has externally the shape of a cube of side x inches and is made of wood d inches thick. Write down the internal dimensions of the box, and hence show that the volume V of the wood contained is given by the formula

$$V = 5dx^2 - 8d^2x + 4d^3.$$

Find the edge of the cube, if the wood is 1 inch thick and V is 260 cu. in. (16)

7. If $y = \sin x + \cos x$, tabulate the values of y to two decimal places for $x = 0°, 10°, 20°, 30°, 40°, 50°, 60°$.

Plot the values so obtained on a graph and draw a smooth curve through the points plotted. Take a scale of $10° = 1$ inch for x, and 1 unit $= 2$ inches for y.

From your curve find for what value of x between $0°$ and $60°$

(i) y has its greatest value,

(ii) y has the value $1 \cdot 2$. **(16)**

8. A man does a journey of d miles at u miles per hour, and the return journey at v miles per hour.

Find the total time taken for the double journey and hence show that his average speed over both journeys is $\frac{2uv}{u+v}$ miles per hour.

If his average speed on the outward journey is 30 miles per hour, find what his average speed for the return journey must be in order to obtain an average of 35 miles per hour over all. **(16)**

9. What is meant by saying that four quantities a, b, c, d are in proportion ?

If they are so, and if $c = ka$, find the value of d in terms of b and k.

Assuming any fact or formula about a triangle, that you may require, prove algebraically

(i) that two triangles with equal heights have areas proportional to their bases ;

(ii) that two triangles with equal bases have areas proportional to their heights. **(16)**

MATHEMATICS

Higher Grade—(First Paper)

Tuesday, 22nd March—9.30 A.M. to 11.30 A.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 figures should be neatly drawn, and, where it is necessary to turn over a page during the answer to a question, a rough copy of the figure MUST *be drawn on the fresh page. 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.*

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

All the questions in this Section should be attempted.

1. Prove that each of the two angles made by a tangent to a circle and a chord drawn from the point of contact is equal to any angle in the alternate segment of the circle. (12)

2. In the triangle ABC, if CD is the perpendicular from C on AB, prove that

$$BC^2 = AB^2 + AC^2 \mp 2 \cdot BA \cdot DA,$$

the upper or lower sign being taken according as the angle A is acute or obtuse.

Deduce the formula $a^2 = b^2 + c^2 - 2bc \cos A$, explaining why the formula is independent of the magnitude of the angle A. (13)

3. Prove that a line drawn parallel to the base of a triangle divides the sides proportionally. (12)

4. If a straight line is such that the perpendicular to it from the origin of co-ordinates has a length p and an inclination α to the positive direction of the axis of x, prove that its equation is

$$x \cos \alpha + y \sin \alpha = p.$$

Show that a circle, whose centre is the origin, can be inscribed in the parallelogram bounded by the four straight lines

$$4x - 3y = \pm 20,$$
$$12x + 5y = \pm 52.$$

Write down the equation of this circle. (12)

SECTION II

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

5. ABC is a triangle inscribed in a circle, the base BC being fixed.

If O is the point of intersection of the altitudes and P the centre of the inscribed circle of the triangle, prove that, as A moves round the arc BAC, the points O and P describe arcs of circles through B and C.

Show that, if the angle A is 60°, the two loci coincide, being arcs of a circle whose radius is the same as that of the original circle. **(17)**

6. A straight line ST is drawn parallel to the base QR of the triangle PQR, meeting PQ and PR in points S and T respectively; RS and QT meet in X, and PX meets ST and QR in points Y and Z respectively.

Prove that $\frac{PY}{PZ} = \frac{YX}{XZ}$ and show that, if $PS = \frac{1}{3}PQ$, X is the mid-point of PZ. (Section I, 3.) **(17)**

7. Prove that the area of a triangle ABC is given by the formula $\frac{1}{2}bc \sin A$, whether A be acute or obtuse. (You may assume the usual mensuration formula for the area.)

If the interior bisector of the angle A of the triangle ABC meets BC in D, show, by applying the above formula to the whole triangle and its two parts, or otherwise, that

$$AD = \frac{2bc \cos \frac{A}{2}}{b + c};$$

and deduce that, if $\hat{A} = 120°$,

$$\frac{1}{AD} = \frac{1}{b} + \frac{1}{c}. \qquad \textbf{(17)}$$

8. Find the centre and radius of the circle, whose equation is

$$x^2 + y^2 + 2gx + 2fy + c = 0.$$

If a point P, whose co-ordinates are (x, y), is such that its distance from the point $(3, 0)$ is twice its distance from the point $(-3, 0)$, prove that P lies on the circle whose equation is

$$x^2 + y^2 + 10x + 9 = 0.$$

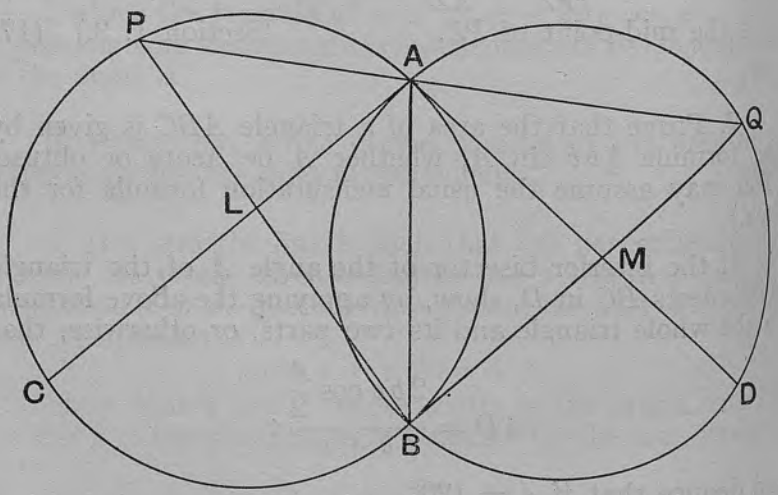
Find the centre and radius of this circle. (17)

9. In the accompanying figure (which need not be copied in your examination book) two circles intersect at points A and B; AC and AD are tangents to the circles and PAQ is any chord through A not lying inside the angle CAD. PB and QB meet AC and AD in points L and M respectively.

Prove that the points A, L, B, M are concyclic.

If P is the mid-point of the arc APC, show that PAQ is the tangent at A to the circle through the points A, L, B, M and that Q is the mid-point of the arc AQD.

(Section I, 1.) (17)



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 clearly indicated.

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. An examiner was paid four pounds for each paper that he set and four shillings for each script that he examined. Income tax at two shillings and sixpence in the pound was deducted, before payment, from the amount due to him. If the number of papers set was eight, and the amount received by him was £78 4*s.* 6*d.*, what was the number of scripts that he examined? **(12)**

2. A truck is constructed in the form of a wooden box, open at the top, and running on four wheels. When empty, the truck weighs 237 lb., and, when just full of dross, it weighs 2 tons 3 cwt. 8 lb. The external measurements of the box are as follows: length 4 ft. 9 in., breadth 3 ft. 7 in., height 3 ft. 8 in. If the sides of the box are $1\frac{1}{2}$ inches thick and the bottom 2 inches thick, find the weight of the dross in pounds per cubic foot, correct to two decimal places. **(12)**

3. Solve the equations

(i) $(x + 1)(x + 2)(x + 3) = 5x(x^2 - 1)$;

(ii) $x^2 + xy = 2$,
$xy + 3y^2 = 1$. **(12)**

4. (i) Show by division, or otherwise, that $a + b + c$ is a factor of

$$a^3 + b^3 + c^3 - 3abc,$$

and obtain the other factor.

Hence, or otherwise, find the value of

$$(y - z)^3 + (z - x)^3 + (x - y)^3 - 3(y - z)(z - x)(x - y).$$

(ii) Simplify

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

(12)

5. With the usual notation for the sides and angles of a triangle ABC, prove that, if $a > b$,

$$\tan\frac{A - B}{2} = \frac{a - b}{a + b}\tan\frac{A + B}{2}.$$

If $a = 34{\cdot}23$, $b = 17{\cdot}86$, $C = 52°\ 18'$, find A, B and c.

(12)

6. Assuming the addition formula for the sine, prove that

$$\sin A + \sin B = 2\sin\tfrac{1}{2}(A + B)\cos\tfrac{1}{2}(A - B),$$

and write down the corresponding formulæ for $\sin A - \sin B$, $\cos A + \cos B$, $\cos A - \cos B$.

Show that

(i) $$\frac{\sin A + \sin\frac{1}{2}(A + B) + \sin B}{\cos A + \cos\frac{1}{2}(A + B) + \cos B} = \tan\tfrac{1}{2}(A + B),$$

(ii) $$\cos^2 A - \cos^2 B = -\sin(A + B)\sin(A - B).$$

(12)

Section II

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

7. Establish a formula for the sum of the first n terms of a geometrical progression of which a is the first term and r the common ratio.

Prove that

$$(1 - x)(1 + x)(1 + x^2)(1 + x^4)(1 + x^8)(1 + x^{16}) = 1 - x^{32},$$

and hence, or otherwise, show that the sum of the first 32 terms of the progression

$$1 + x + x^2 + x^3 + \ldots\ldots$$

is $$(1 + x)(1 + x^2)(1 + x^4)(1 + x^8)(1 + x^{16}).$$

(14)

8. Tabulate the values, to two places of decimals, of $\sin x$ and $\frac{3}{2} \cot x$ for $x = 30°, 40°, 50°, 60°, 70°, 80°, 90°$. Draw the graphs of these functions from $x = 30°$ to $x = 90°$ on the same diagram, taking one inch on the axis of x to represent 20° and two inches on the axis of y to represent unity.

Find from your diagram the value of x between 0° and 90° which satisfies the equation

$$2 \sin x = 3 \cot x,$$

and verify your result by solving the equation. **(14)**

9. If $t = \tan \frac{1}{2}\theta$, prove that

$$\text{(i)} \quad \cos \theta = \frac{1 - t^2}{1 + t^2},$$

$$\text{(ii)} \quad \sin \theta = \frac{2t}{1 + t^2}.$$

If $\cos \theta + 2 \sin \theta = 1$, find the values of $\tan \frac{1}{2}\theta$, and hence, or otherwise, obtain all the values of θ between 0° and 360° which satisfy the equation. **(14)**

10. If $\frac{a}{b} = \frac{c}{d}$, prove that each of these ratios is equal to

$$\frac{la + mc}{lb + md},$$

and also to one value of

$$\sqrt{\left(\frac{ac}{bd}\right)}.$$

If

$$\frac{b + c - a}{l} = \frac{c + a - b}{m} = \frac{a + b - c}{n},$$

show that

$$\frac{b - c}{m - n} = \frac{c - a}{n - l} = \frac{a - b}{l - m}.$$

(14)

ARITHMETIC

Tuesday, 22nd March—9.30 A.M. to 11.30 A.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 legible and shown in its proper position in the answer, and, when necessary, the different steps should be clearly indicated.

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

1. Find the cost of sixteen thousand and fifty-six bricks at 7*s.* 6*d.* per gross. (8)

2. The price of an annual season ticket from Edinburgh to Linlithgow is £20 6*s.* 0*d.*, and that of an ordinary return ticket is 2*s.* 3*d.* What is the least number of return journeys per week which will make it worth while to take a season ticket ? (9)

3. A man divided £1,600 between his two sons in the proportion of 3 to 2. The elder son, who received the larger amount, bought a house with his share, but was obliged to sell it at the end of 15 months at a loss of 15 per cent. The younger invested his share for 15 months at $2\frac{1}{4}$ per cent. per annum simple interest. How much money will each son now have ? (11)

4. Coal is sold in France at 165 francs per 1,000 kilog. If 1 kilog. is equivalent to 2·205 lb. and the rate of exchange is 110 francs to the £, find in English money, correct to the nearest penny, the price of coal per ton. (12)

5. A rectangular swimming bath 44 yards long and 16 yards broad with vertical sides and ends is full of water. Given that 1 cubic foot of water is equivalent to $6\frac{1}{4}$ gallons, find how many gallons of water must be drained off to lower the level of the water by $4\frac{1}{2}$ inches. (12)

6. A bank fails and pays 7*s.* 9*d.* in the £. As a result of this, a man who has £9,500 in the bank is compelled to go bankrupt. His other assets are £2,110 and his debts are £9,266. How much can he pay in the £? **(13)**

7. A man buys a motor-car for £288. On repairs he spends $2\frac{1}{2}$ per cent. of the price of the car in the first year, 7 per cent. in the second and $9\frac{1}{4}$ per cent. in the third. He pays 6*s.* 8*d.* per week for garage and his average expenditure on petrol, licences, insurance, etc., amounts to £32 a year. At the end of the third year he sells the car for £108. Find, to the nearest shilling, his average weekly cost for motoring. **(15)**

ELEMENTARY ANALYSIS

Additional Mathematical Subject
(Higher Grade)

Wednesday, 23rd March—9.30 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.

Not more than FOUR questions should be attempted from Section I, and not more than TWO 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. Prove that, if $|x| < 1$,

$$\frac{1+x}{(1-x)^3} = 1 + 4x + 9x^2 + \ldots + n^2x^{n-1} + \ldots$$

Find also the sum to n terms of this series. **(15)**

2. Prove that

$$\begin{vmatrix} 1 & bc & b+c \\ 1 & ca & c+a \\ 1 & ab & a+b \end{vmatrix} = \begin{vmatrix} 1 & 1 & 1 \\ a & b & c \\ a^2 & b^2 & c^2 \end{vmatrix}.$$

Factorize

$$(b-c)\,(a-d)\,(b^2c^2+a^2d^2)+(c-a)\,(b-d)\,(c^2a^2+b^2d^2) + (a-b)\,(c-d)\,(a^2b^2+c^2d^2).$$ (15)

3. State and prove De Moivre's Theorem for a positive or negative integral exponent.

Find trigonometrical expressions for the sixth roots of unity; and express *one* such root in the form $a+ib$, where a and b are positive decimals. (15)

4. If $u = \tan x$, $v = \sec x$, show that

$$\frac{du}{dx} = v^2, \quad \frac{dv}{dx} = uv.$$

Differentiate v^2, uv, and integrate $v\,(u+v)$, with respect to x. (15)

5. Sketch the graph of $y = e^x$.

If P is the point (x, y) on this curve, and N the point $(x, 0)$, and T, G the points where the tangent and normal at P cut the axis of x, show that TN is constant, and that NG varies as the square of PN. (15)

Section II

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

6. Prove that the series $1+\frac{1}{2}+\frac{1}{3}+\frac{1}{4}+\ldots$ diverges.

If $-1<x<1$, show that $x+\frac{x^2}{2}+\frac{x^3}{3}+\ldots$ converges.

Examine the series

$$A = \frac{11}{10}+\frac{121}{200}+\frac{1331}{3000}+\frac{14641}{40000}+\ldots$$

and $B = \frac{9}{10}+\frac{81}{200}+\frac{729}{3000}+\frac{6561}{40000}+\ldots$

for convergence. (20)

7. Prove the binomial theorem for the expansion of $(1 + x)^n$, when n is a positive integer.

Assuming that the expansion may hold when n is negative and fractional and $-1 < x < 1$, show that

$$(1-h)^{-\frac{1}{2}} = 1 + \frac{1}{2}h + \frac{1 \cdot 3}{2 \cdot 4}h^2 + \frac{1 \cdot 3 \cdot 5}{2 \cdot 4 \cdot 6}h^3 + \ldots$$

Sum the infinite series

$$1 + \frac{1}{20} + \frac{1 \cdot 3}{20 \cdot 40} + \frac{1 \cdot 3 \cdot 5}{20 \cdot 40 \cdot 60} + \ldots$$

and deduce the value of $\sqrt{10}$ to four decimal places. **(20)**

8. Obtain the first four terms and the general term of the expansion of

$$(1 + x) \log (1 + x) + (1 - x) \log (1 - x)$$

in ascending powers of x when $|x| < 1$.

Hence prove that, if $|x| < 1$,

$$(1 + x)^{1+x} (1 - x)^{1-x} \geq 1. \qquad \textbf{(20)}$$

9. Show that, if $f'(a) = 0$, $f''(a) > 0$, then $f(x)$ has a minimum value at $x = a$. State the corresponding conditions for a maximum.

Find the maximum and minimum values of

$$(x - 1)(2x^2 + 5x - 7). \qquad \textbf{(20)}$$

GEOMETRY

Additional Mathematical Subject
(Higher Grade)

Wednesday, 30th March—9.30 A.M. to 11.30 A.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 THREE questions should be attempted from Section I, and not more than TWO questions from Section II.

Square-ruled paper is provided.
20 marks are assigned to each question.
Marks will be deducted for careless or badly arranged work.

Section I

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

1. Prove that the perpendicular distance of the point P, whose co-ordinates are (x_1, y_1), from the straight line

$$ax + by + c = 0$$

is given by

$$\frac{ax_1 + by_1 + c}{\sqrt{a^2 + b^2}}.$$

If c is positive, what information does the sign of this expression give as regards the position of P?

The perpendicular from P is produced its own length beyond the line to Q. If Q has co-ordinates (x_2, y_2) show that x_2 and y_2 may be determined from the equations

$$a(x_1 + x_2) + b(y_1 + y_2) + 2c = 0,$$
$$a(y_1 - y_2) = b(x_1 - x_2).$$

2. Write down the general equation of a circle which passes through the points of intersection of the two circles

$$x^2 + y^2 + 2gx + 2fy + c = 0,$$
$$x^2 + y^2 + 2g'x + 2f'y + c' = 0.$$

Find the equations of the two circles which touch the axis of y and pass through the points of intersection of the circles whose equations are

$$x^2 + y^2 - 10x - 2y + 16 = 0,$$
$$x^2 + y^2 - 10x + 6y + 16 = 0.$$

3. A point moves so that its distance from the point $(a, 0)$ is equal to its perpendicular distance from the straight line $x + a = 0$. Prove that its locus is the parabola given by the equation $y^2 = 4ax$.

Show that the normals to this parabola at the two points where it is intersected by the straight line

$$2x - 3y + 4a = 0$$

meet on the parabola.

4. Prove that the straight lines

$$y = mx \pm \sqrt{m^2a^2 + b^2}$$

are tangents to the ellipse

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

for all values of m, and find the co-ordinates of their points of contact.

A perpendicular is drawn from the point $(\sqrt{a^2 - b^2}, 0)$ to a tangent to the ellipse, meeting it at P. Show that P is at the constant distance a from the origin.

5. A straight line, drawn through the origin at an angle θ to the axis of x, meets the line $x = a$ at the point P. OP is produced to Q, so that

$$OQ = \frac{k^2}{OP},$$

where k is a constant.

Prove that the co-ordinates of Q are $\frac{k^2}{a}\cos^2\theta$, $\frac{k^2}{a}\cos\theta\sin\theta$, and hence that, as θ varies, Q traces out the circle

$$a(x^2 + y^2) = k^2 x.$$

What relation has this circle to the line $x = a$?

Section II

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

6. Prove that, if a straight line PQR cuts the sides BC, CA, AB of a triangle ABC in points P, Q, R, then

$$\frac{BP}{CP} \cdot \frac{CQ}{AQ} \cdot \frac{AR}{BR} = +1,$$

the sense of the lines being taken into account.

The incircle of a triangle ABC touches the sides BC, CA, AB at X, Y, Z and ZY meets BC in W.

Prove that the points X, W are harmonic conjugates with respect to B, C.

7. Prove that, if the polar of a point P with respect to a circle passes through a point Q, then the polar of Q passes through P.

Given the positions of such points P and Q and also of C the centre, construct the circle.

8. If P is any point on the radical axis of two non-intersecting circles and PX is a tangent to one of the circles, show that the circle with P as centre and PX as radius is orthogonal to the given circles.

If this circle meets the line of centres of the given circles in L and M, prove that these points are fixed and independent of the position of P on the radical axis.

Given two circles and a point (not on their radical axis) show how to construct a circle through the point, which will be orthogonal to both circles.

9. Prove that the sum of the squares on the sides of a skew quadrilateral (*i.e.*, one whose sides are not all in one plane) exceeds the sum of the squares on the diagonals by four times the square on the line joining the mid-points of the diagonals.

(You may assume any theorem in plane geometry which you may require.)

Deduce that the sum of the squares on the edges of a tetrahedron is equal to four times the sum of the squares on the three lines joining the mid-points of the opposite pairs of edges.

DYNAMICS

Additional Mathematical Subject

(Higher Grade)

Friday, 25th March—1.0 p.m. to 3.0 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.

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

In the answers to arithmetical examples units must be stated.

$g = 32\ ft./sec.^2$

SECTION I

All the questions in this Section should be attempted.

1. Prove the formula $s = ut + \frac{1}{2}ft^2$, where s is the distance travelled in time t by a point which, starting with velocity u, moves in a straight line with uniform acceleration f.

Determine the velocity of a body which has fallen freely from rest through a distance of 49 feet.

If, instead of falling straight down, it is constrained to slide down a smooth plane inclined at 45° to the horizontal, so that the total vertical distance through which it has moved remains unaltered, show that the time taken will be longer by $\frac{7(\sqrt{2}-1)}{4}$ seconds. **(15)**

2. What are the conditions of equilibrium of three forces acting in a plane, when the forces (i) meet at a point, (ii) are parallel ?

A hemispherical bowl, 16 inches in diameter and weighing $7\frac{1}{2}$ lb., is suspended from the ceiling below an electric lamp by three light strings each $19\frac{1}{2}$ inches in length, which are attached to three equidistant points on the edge of the bowl and to three equidistant points on the circumference of a circular disc of 3 inches diameter on the ceiling. Find the tensions in the strings. **(15)**

3. What is the tension in a string supporting a mass m when the upper end of the string is (*a*) at rest, (*b*) moving upward with an acceleration f, and (*c*) moving downward with an acceleration f ?

A light inextensible string passing over a smooth peg carries a 2 lb. weight at one end and an unknown weight of W lb. at the other. The string in contact with the peg is held at rest with the masses hanging freely and then released. If the 2 lb. weight rises 10 feet in $2\frac{1}{2}$ seconds, find the value of W.

What total force does the string exert on the peg during the motion ? **(15)**

4. State the conditions of equilibrium of a solid body floating in a liquid.

An egg, when placed in a vessel containing water, sinks to the bottom. When a certain amount of brine is mixed with the water, the egg is seen to float, though

completely immersed. In what proportions by volume must the water and the brine be mixed to attain this state, if the relative density of the egg is 1·03, and that of the brine 1·05? (15)

Section II

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

5. Explain what is meant by "relative velocity."

A cyclist rides at 10 m.p.h. due west and the wind, blowing at 5 m.p.h. from a point between west and north, appears to the cyclist to come from a point 18° to the north of west. Find the true direction of the wind.

Find also the direction in which the wind will appear to meet him on his return journey if he rides at half of his former speed. (20)

6. Define force, work, horse-power.

A car of 9 horse-power, weighing 10 cwt., can maintain a speed of 45 miles an hour on a level road. Find in lb. weight the resistance to motion. Determine also the speed that the same car could maintain when travelling up a hill of 1 in 8, assuming that the resistance, apart from gravity, remains unaltered. (20)

7. State Boyle's Law.

A volume of 8 cu. cm. of air, measured at atmospheric pressure, when introduced into the space above the mercury in a barometer tube, caused the mercury, which was standing at a height of 76 cm., to fall, leaving a space of 12 cu. cm. at the top of the tube. Determine the final height of the mercury column. (20)

8. A uniform cylinder of radius r and height h rests with its circular base on a rough horizontal plane, and is acted on by a horizontal force through the centre of its upper end. If this force is just sufficient to move the cylinder, show that it will slide, and not topple over, if the coefficient of friction is less than the ratio $\frac{r}{h}$.

If the force is withdrawn and the plane is gradually tilted, show that the cylinder will topple over before it slides if the ratio $\frac{2r}{h}$ is less than the coefficient of friction. (20)

BOOKKEEPING

Friday, 25th March—1.0 P.M. to 4.0 P.M.

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

1. Explain—pro forma invoice, bankrate. **(10)**

2. Harry and George Andrews are in partnership. On 1st January, 1938, their assets and liabilities were—cash in hand, £50; at bank, £359 8*s.* 2*d.*; debtors, W. Brown, £373 17*s.* 4*d.*, E. Martin, £296 15*s.* 9*d.*; creditors, G. Smith, £176 16*s.* 3*d.*, R. Jones, £194 15*s.* 7*d.*; bills receivable, No. 101 (F. Wilson) due 19th January, 1938, £250, No. 102 due 9th February, 1938, £300; bills payable, No. 73 due 27th January, 1938, £200; stock, £3,441 10*s.* 7*d.*; capital, H. Andrews, £2,096 14*s.* 6*d.*, G. Andrews, £2,403 5*s.* 6*d.*

Open the necessary books of account and record therein the above and the following transactions; bill books should be kept. Post to ledger and extract a trial balance. All receipts were banked the same day.

1938.

Jan. 1. Paid month's rent in advance by cheque, £20 16*s.* 8*d.*

3. Bought goods of G. Smith, £234 17*s.* 3*d.* Gave him cheque for £100 and our acceptance for £250 at three months.

4. Paid for insurance, cash, £5 10*s.*

6. Sold goods to W. Brown, £76 18*s.* 4*d.* Received his bill at three months for £400.

8. Bought goods of R. Jones, £43 16*s.* 5*d.* Gave him cheque for £235. Balance of account allowed as discount.

10. Discounted bill No. 102 at bank. Discount £3 17*s.* 9*d.*

11. Received goods invoiced at £598 14*s.* 6*d.* from R. Day to be sold on his account. Paid delivery charges, cash, £2 18*s.* 4*d.*

Jan. 12. Received E. Martin's cheque for £200. Bank commission 1*s.* 6*d.*

17. Sold goods to E. Martin, £175 19*s.* 8*d.*

19. Bill due to-day renewed, with interest £3 15*s.*, at three months.

22. Received E. Martin's bill at three months for £250 and cheque £20, discount £2 15*s.* 5*d.*

24. Sold part of R. Day's goods on credit to J. Young for £295 10*s.* 6*d.*

25. Sold goods to F. Wilson, £89 15*s.* 9*d.* Received his cheque for £88 10*s.*—balance allowed as discount.

26. Goods value £1,094 13*s.* 10*d.* sent to R. Ford, London, to be sold on our account on commission. Paid carriage, £10 5*s.* 7*d.*, by cheque.

27. Bill due to-day met at bank.

29. Paid sundry expenses, £7 5*s.* 3*d.* cash.

31. Paid wages and insurance, £27 13*s.* 9*d.* cash. (50)

3. From the following balances taken from the books of Messrs. Moore & Moore on 31st December, 1937, make up a trial balance and prepare trading account, profit and loss account and balance sheet.

Cash in hand, £67 1*s.* 3*d.*; bank overdrawn, £1,074 5*s.* 9*d.*; stock (at 1st July, 1937), £3,132 10*s.* 7*d.*; bills payable, £450; bills receivable, £310; rents received, £270 17*s.* 6*d.*; sales, £17,784 15*s.* 3*d.*; purchases, £8,355 15*s.* 7*d.*; returns outwards, £342 4*s.* 8*d.*; wages, £3,454 14*s.* 11*d.*; salaries, £2,149 3*s.* 10*d.*; trade expenses, £467 2*s.* 1*d.*; rates and insurance, £393 5*s.* 6*d.*; discounts allowed, £245 3*s.* 10*d.*; carriage inwards, £156 7*s.* 2*d.*; sundry creditors, £948 14*s.* 11*d.*; sundry debtors, £4,529 13*s.* 4*d.*; machinery, £1,050; bad debts reserve, £290; loan to R. Brown, £1,000; drawings, J. Moore, £500, H. Moore, £350; capital, J. Moore, £3,000, H. Moore, £2,000.

Stock at 31st December, 1937, was valued at £3,245 18*s.* 6*d.* Half year's interest due at Martinmas, 1937, on loan to R. Brown at 5 per cent. per annum had not been received.

Provide for depreciation on machinery at 15 per cent. per annum, H. Moore's salary as manager at £1,000 per annum, and interest on capital, less drawings, at 5 per cent. per annum. Bad debts reserve of 5 per cent. on debtors to be carried forward. Profits to be divided—J. Moore, two-thirds, H. Moore, one-third. **(40)**

COMMERCIAL ARITHMETIC

(First Paper)

Friday, 25th March—9.30 A.M. to 10.0 A.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.

1. Add, down and across :—

£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
1,429	17	5	3,458	19	11	428	7	10	.....	.....	.....
982	9	8	967	13	10	3,755	6	4	.....	.....	.....
2,815	19	2	2,545	2	11	594	17	8	.....	.....	.....
997	8	4	4,269	17	7	2,269	4	3	.....	.....	.....
774	11	9	474	3	6	445	19	11	.....	.....	.....
3,559	10	5	723	8	5	684	3	7	.....	.....	.....
424	4	3	898	5	9	775	12	8	.....	.....	.....
963	9	9	1,357	12	5	5,469	7	10	.....	.....	.....
5,238	7	11	942	17	8	857	14	5	.....	.....	.....
£	:	:	£	:	:	£	:	:			

(8)

2. Subtract :—

£	s.	d.	£	s.	d.	£	s.	d.
67,549	3	2	93,812	17	5	45,319	11	8
59,995	17	5	28,787	16	7	37,583	11	11
£	:	:	£	:	:	£	:	:

(3)

3. Write down the value of :—

15 doz. articles at 7½*d.* each.....

647 francs at 120 francs to £1.....

1 cwt. at 9*d.* per lb.....

(5)

COMMERCIAL ARITHMETIC
(Second Paper)

Friday, 25th March—10.0 A.M. to 11.30 A.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.

Four-place logarithmic tables are provided.

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

1. A rectangular plot of land is 35·75 metres wide and 114·25 metres long. Find its value in English money at 37·5 francs per square metre, if 125 francs = £1. (6)

2. In what proportion must tea costing 1*s.* 6*d.* per lb. be mixed with tea at 2*s.* 6*d.* per lb. in order to sell the mixture at 2*s.* 4*d.* per lb. and make a profit of 33⅓ per cent.? (8)

3. A bankrupt's assets amounted to £380 15*s.* 7*d.* and his liabilities to £1,514 0*s.* 2*d.* After paying creditors for £35 17*s.* 8*d.* in full, how much could he pay in the £ on the rest of his liabilities ? (8)

4. The cost price of an article is £7 13*s.* 9*d.* At what price must it be sold to make a profit of 18 per cent. on the turnover ? (10)

5. A man invested £1,050 in 5 per cent. stock at 105. At the end of 3 years the rate of interest was reduced to 3½ per cent. Two years later he sold out at 101. Taking capital and interest into account, calculate what difference it would have made if, instead, he had invested at the beginning in 3½ per cent. stock at 100, selling out after 5 years at 101 ? (10)

6. An article is sold at 1*s.* 3*d.* in London, 8·05 francs in Paris, and 30 cents in New York. If all the prices are equal in value, what are the rates of exchange between the three places ? (10)

7. In how many years will £3,437 amount to £7,065 at 3½ per cent. compound interest ? (Use logarithms). (12)

SCIENCE

HIGHER GRADE—(BOTANY)

Wednesday, 30th March—9.30 A.M. to 11.30 A.M.

FIVE questions in all should be attempted.

Answers should, wherever possible, be illustrated by diagrams.

20 *marks are assigned to each question.*

N.B.—Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing.

1. Describe any *one* case of exchange of gases between the green plant and the atmosphere, stating (*a*) the process of which this exchange forms part, (*b*) the part or parts of the plant where it takes place.

2. Give a large-scale drawing of a transverse section of **either** a Dicotyledon leaf **or** a Monocotyledon leaf. Name the tissues and state the functions of each.

3. Name three common food-substances found in seeds, and state how you would test for each of them. Describe how any *one* of these substances is made available for the growing seedling.

4. What are root-hairs? Give an illustrated account of their structure and occurrence, and state briefly their function in the life of the plant.

5. Describe and explain what happens when a germinating seed is kept

(*a*) in total darkness,

(*b*) with light falling on it from one side only.

6. State briefly how you would distinguish between the following pairs of Natural Orders:—

Ranunculaceae and Rosaceae,
Liliaceae and Amaryllidaceae,
Labiatae and Scrophulariaceae.

Name *one* plant belonging to each order.

7. **Either** (*a*) Arrange the following plants in groups according to whether they are distributed (i) by vegetative means, (ii) by fruits, (iii) by seeds :—

Poppy, Crocus, Potato, Wheat (or Maize), Pea, Cherry, Pine, Strawberry, Sycamore, Couch-grass.

Describe in detail any *one* of the plants mentioned.

Or (*b*) Select any *four* of the following plants, and in each case name the habitat in which you would expect to find it growing :—

Heather, Marram Grass, Water-buttercup, Poppy, Goose-grass (Cleavers), Lesser Celandine.

Mention briefly any features of the structure of the plants you select which fit them for life in their particular habitats.

SCIENCE

HIGHER GRADE—(CHEMISTRY)

Wednesday, 30th March—1.45 P.M. to 3.45 P.M.

Not more than FIVE questions should be attempted. Full marks will not be awarded unless the answers are illustrated by carefully drawn diagrams of reasonable size and supplemented by equations wherever possible.

$C = 12$, $O = 16$, $Na = 23$, $Cl = 35 \cdot 5$, $Ca = 40$.

20 *marks are assigned to each question.*

Mathematical tables will be supplied to those who desire them.

N.B.—Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing.

1. Explain fully the meaning of the terms oxidation and reduction.

Select *any four* of the following reactions and state the conditions under which they take place. Write equations for the reactions and in each case show that both oxidation and reduction have taken place.

(i) Carbon and sulphuric acid,
(ii) Chlorine and hydrogen sulphide,
(iii) Chlorine and ammonia,
(iv) Lead sulphide and hydrogen peroxide,
(v) Ferrous sulphate and potassium permanganate.

2. Describe the method of determining the vapour density of a volatile liquid, using Victor Meyer's apparatus. Show how the results may be used to find the molecular weight of the compound.

The vapour from 0·14 gm. of a liquid, which was a compound of carbon, hydrogen and oxygen, occupied 54·7 c.c. at 14° C. and 763 mm. pressure. Analysis of the liquid showed that it contained 40 % carbon and 6·67 % hydrogen. Find (*a*) the empirical formula and (*b*) the molecular formula.

3. Describe the method you would adopt to prepare three jars of hydrogen sulphide. (Use ferrous sulphide.) What impurity would you expect to find in the gas you had prepared? Account for it and describe the experiments by which the impurity could be isolated and identified. Describe the experiments you would perform with the hydrogen sulphide to demonstrate (*a*) its constituent elements, (*b*) its action on sulphur dioxide.

4. Given pure dry calcium carbonate and a normal solution of hydrochloric acid, describe the method you would follow to find the equivalent of calcium carbonate. State, with reasons, whether (*a*) sulphuric acid, (*b*) nitric acid could be used in place of hydrochloric acid.

0·54 gm. of an acid, equivalent 63, is contained in 100 c.c. of a given aqueous solution. What volume of $0{\cdot}9\ \frac{N}{10}$ sodium hydroxide would be required to neutralise 20 c.c. of this solution ?

5. Air is passed over quicklime and then over heated copper turnings. Describe, with sketch, the apparatus you would use for this experiment and show how it could be used to identify the four chief constituents of the atmosphere.

6. Starting in each case with distilled water, how would you prepare specimens of (*a*) temporarily hard water, (*b*) permanently hard water ? Indicate the series of experiments which you would carry out to prove that your preparations had been successful.

7. (*a*) The fixation of nitrogen is a most important large scale manufacturing process.

Write a short historical note on the fixation of nitrogen, and give in outline one of the methods adopted to-day. Mention some of the uses to which the product is put.

Or

(*b*) You are supplied with the following pairs of substances :—

(i) manganese dioxide and copper oxide,
(ii) potassium chloride and ammonium chloride,
(iii) nitrogen peroxide and bromine vapour,
(iv) sodium bicarbonate and sodium carbonate (anhydrous),
(v) lead nitrate and potassium nitrate.

Describe and explain one chemical experiment *in each case* by which you could distinguish between them.

SCIENCE

HIGHER GRADE—(ENGINEERING) / (TECHNICAL SUBJECTS)

Friday, 25th March—9.30 A.M. to 11.30 A.M.

ENGINEERING. Candidates should attempt FIVE questions, viz., THREE questions from Section A, and at least ONE question from Section B. The fifth question may be taken from either Section B or Section C.

TECHNICAL SUBJECTS. Candidates should attempt FIVE questions, viz., THREE questions from Section A, and TWO questions from Section D.

20 *marks are assigned to each question.*

When candidates use a formula they must explain each symbol. Units must always be stated.

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

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

N.B.—Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing.

SECTION A (FOR ALL CANDIDATES)

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

1. Explain the conditions required in the drawing of a polygon of forces.

Figure 1 shows a frame structure attached to a wall at points A and B. The structure carries loads of 2 and 4 tons. Determine graphically—

(*a*) the forces in the various members of the structure, and state for each member whether it is in tension or compression ;

(*b*) the reaction at B in magnitude and direction.

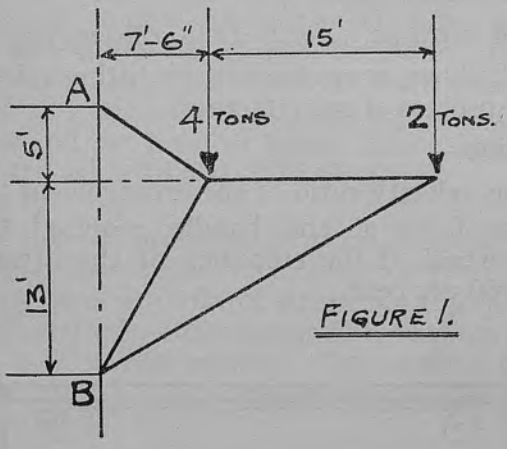


FIGURE 1.

2. A railway train complete weighs 300 tons, the engine and tender weighing 90 tons. The train on starting from a station has a level run of 4 miles, along which it uniformly accelerates to a speed of 40 miles per hour. It then ascends a uniform incline with a vertical rise of 1 in 80 of rail without any change of speed. Assuming a frictional resistance of 25 lb. per ton, determine—

(*a*) the pull on the drawbar between the tender and the first coach for the first four miles ;

(*b*) the horse-power being developed by the engine when the train is on the incline.

3. Explain the following terms :—*Intensity of Stress; Strain ; Tie ; Strut.*

State Hooke's law and describe briefly an experiment to verify this law.

A cast iron strut, 3 ft. long and 4 in. in diameter, carries a load of 25 tons.

Determine—

(*a*) the intensity of stress ;

(*b*) the compression of the column.

Take Young's Modulus for the material at 8,000 tons per sq. in.

4. State the *Principle of Work.*

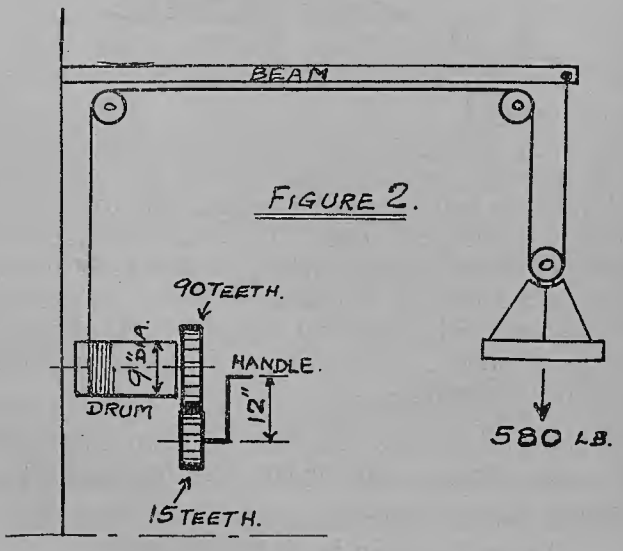
Define *a machine, velocity ratio, efficiency of a machine.*

Figure 2 shows a mechanism for lifting railway wheels during their process of manufacture.

Determine—

(*a*) the velocity ratio of the arrangement ;

(*b*) the force at the handle required to lift the wheel, if the efficiency of the arrangement is 60 per cent.



SECTION B (FOR ENGINEERING CANDIDATES ONLY)

Not more than TWO *questions may be attempted from this Section.* (*See General Instructions at the head of the paper.*)

5. Explain the term "*Thermal Efficiency*" with reference to any form of heat engine.

Determine the thermal efficiency in the following cases :—

(*a*) A steam engine develops 3,500 h.p. when the consumption of dry steam is 63,000 lb. per hour. The steam pressure is 250 lb. per sq. in. and the temperature of the exhaust steam is 169° F.

(At 250 lb. per sq. in. steam pressure the latent heat is 830·7 B.Th.U. per lb. and the sensible or liquid heat is 376·3 B.Th.U. per lb.)

(*b*) A gas engine develops 50 h.p. when using 990 cubic feet of gas per hour ; the calorific value of the gas is 480 B.Th.U. per cubic foot.

(*c*) An oil engine develops 2,000 h.p. and uses 0·43 lb. of oil per h.p. per hour. The calorific value of the oil is 18,500 B.Th.U. per lb.

6. What are the primary functions of a condenser ?

In a marine installation developing 9,000 h.p. at a steam consumption rate of 10·2 lb. of steam per h.p. per hour the engines exhausted into a condenser at a vacuum of 27·1 in. mercury on a 30 in. barometer. The condensate left the condenser at 102° F. ; the circulating water entered at 60° F. and left at 90° F.

The following data give steam values :—

Pressure. *lb. per sq. in.*	*Temperature.* *°F.*	*Latent Heat.* *B.Th.U.*
1·3	111	1,028
1·4	113	1,026·5
1·5	115	1,025

Calculate :—

(*a*) the pressure in the condenser in lb. per sq. in. ;

(*b*) the quantity of circulating water required per hour ;

(*c*) the diameter of the pipe required to pass the circulating water when the speed of flow is limited to 8 ft. per second.

(1 in. of mercury represents 0·49 lb. per sq. in.
1 cubic foot of water weighs 62·5 lb.)

7. With reference to a petrol engine write a few lines about the function of each of the following parts :—

Ignition coil, carburettor, exhaust manifold, magneto.

Sketch a typical indicator card from this kind of engine. On the sketch mark the various strokes of the piston.

A six-cylinder engine working on the 4-stroke cycle develops 40 horse-power when running at 1,800 revs. per minute; the bore of the cylinders is 3·1 in. and the stroke is 4·2 in.

Calculate the mean cylinder pressure in lb. per sq. in.

Section C (for Engineering candidates only)

Only ONE *question may be attempted from this Section.* (*See General Instructions at the head of the paper.*)

8. A water turbine is driven by water from a stream and receives 25 cubic feet of water per second from a fall of 80 ft.

The efficiency of the turbine is 70 per cent.

The turbine drives a dynamo which has an efficiency of 87 per cent. The dynamo delivers current at 250 volts to a distant motor and there is a 10 per cent. loss of current in the transmission lines.

Determine—

(*a*) the horse-power developed by the turbine ;
(*b*) the current supplied to the motor ;
(*c*) the kilowatts delivered by the motor if its efficiency is 72 per cent.

(1 cubic foot of water weighs 62·5 lb.)

9. Define *a kilowatt* and *a B.O.T. unit,* and give the relation between a kilowatt and a horse-power.

An electric immerser heater in a domestic water supply takes 8 ampères on a circuit at 250 volts and the water tank contains 40 gallons.

Determine—

(*a*) the resistance of the heater ;
(*b*) the B.Th.U. of heat given off per minute ;
(*c*) the time required to heat the water in the tank from 60° F. to 120° F. ; and
(*d*) the cost of heating the water at 3*d.* per B.O.T. unit.

(1 gallon of water weighs 10 lb.)

SECTION D (FOR TECHNICAL SUBJECTS CANDIDATES ONLY)

Not more than TWO *questions may be attempted from this Section.* (*See General Instructions at the head of the paper.*)

10. Explain the terms *Velocity, Acceleration, Momentum,* and state the units in which each is usually expressed.

A large casting is fixed to the table of a planing machine and together they weigh 2,400 lb.

Calculate—

(*a*) the momentum when the table is moving at 2 ft. per sec. ;

(*b*) the change in momentum between the cutting (forward) stroke at 2 ft. per sec. and the return (backward) stroke at 5 ft. per sec. ;

(*c*) the force exerted by the tool when it starts to cut the metal if the speed of the table changes from 3 ft. per sec. to 1 ft. per sec. in $\frac{1}{10}$ second.

11. State the laws of friction and describe briefly an experiment to verify one of these laws.

Figure 3 shows a slide valve in a steam engine being driven by a valve rod and an eccentric. The area of the working face of the valve is 120 sq. in., the steam pressure on the back of the valve is 150 lb. per sq. in., the eccentric shaft rotates at 120 revs. per minute, and the stroke of the valve is 4 in.

Taking a coefficient of friction at 0·09, determine—

(*a*) the force necessary to move the valve ;

(*b*) the horse-power lost in valve friction.

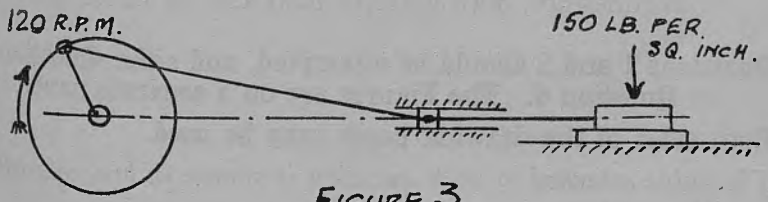


FIGURE 3.

12. Define *Force* and *Moment of a Force.* State the Law of Moments.

A capstan consists of a vertical cylindrical drum 3 ft. 0 in. diameter with six bars each projecting 6 ft. radially from the surface of the drum. It is worked by six men, one to each bar, each man pushing horizontally at right angles to his bar with a force of 40 lb. They raise a load of $\frac{1}{3}$ ton by means of a rope which is coiled round the capstan drum.

Determine—

(*a*) the total moment produced by the men ;

(*b*) the efficiency of the arrangement.

13. Explain the terms *Potential Energy* and *Kinetic Energy,* and give an example of each.

What relationship exists between mechanical energy and heat energy ?

A motor car weighing 30 cwt. is moving at a speed of 50 m.p.h.

It is brought to a stop in 60 yards.

Determine—

(*a*) the kinetic energy of the moving car ;

(*b*) the average braking force required to stop the car ;

(*c*) the B.Th.U. of heat produced during the braking action.

SCIENCE

HIGHER GRADE—(TECHNICAL DRAWING)

Wednesday, 30th March—9.30 A.M. to 12 NOON

Questions 1 and 2 should be attempted, and *either* Question 3 *or* Question 4. The Figures are on a separate paper.

Both sides of the drawing paper may be used.

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

TO BE DISTRIBUTED WITH THE

TECHNICAL DRAWING

QUESTION PAPER

FIGURES

[*Turn over.*

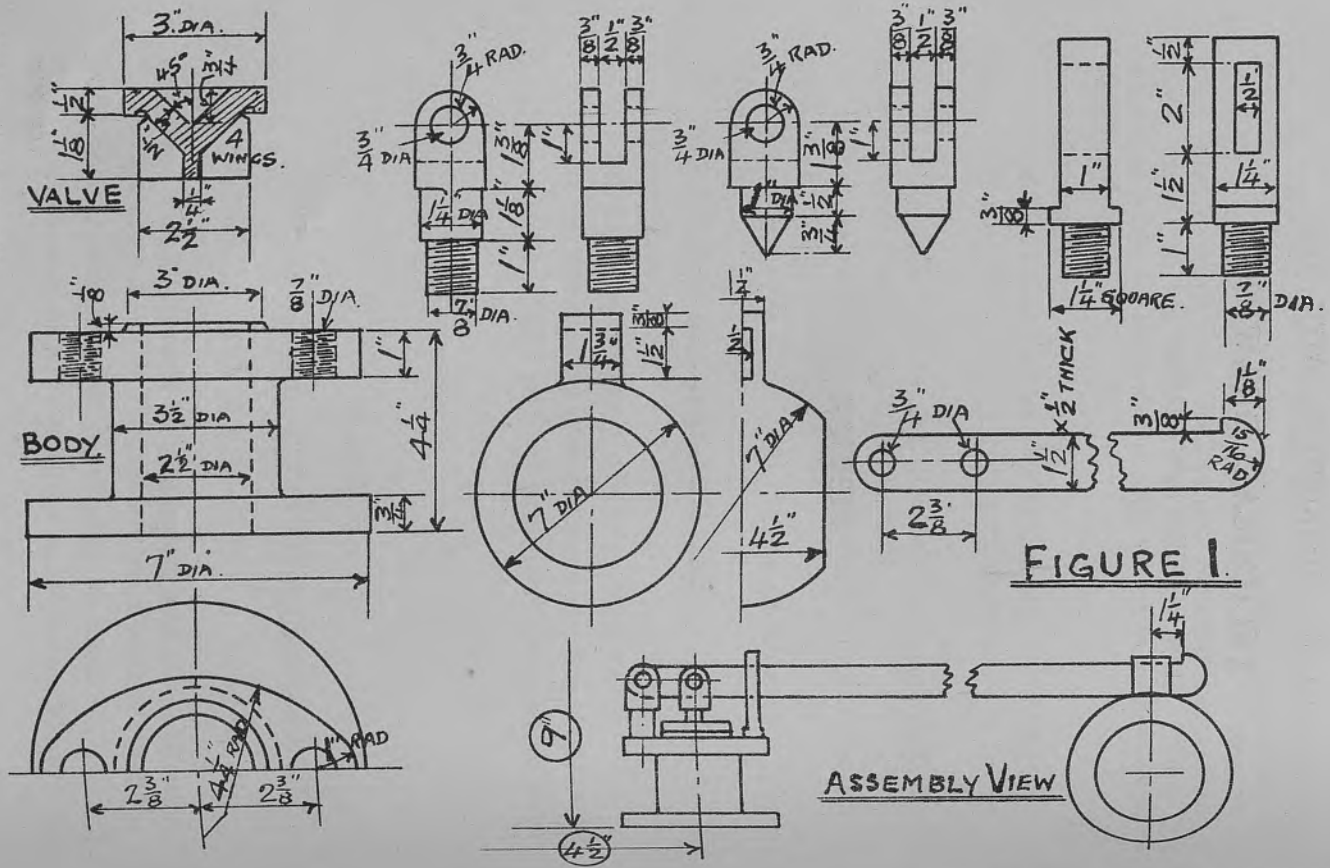


FIGURE 1.

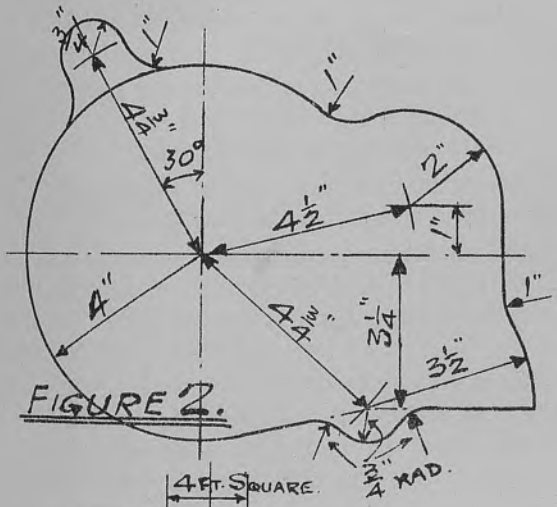


FIGURE 2.

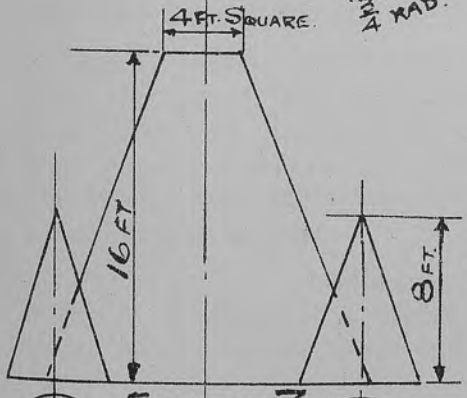
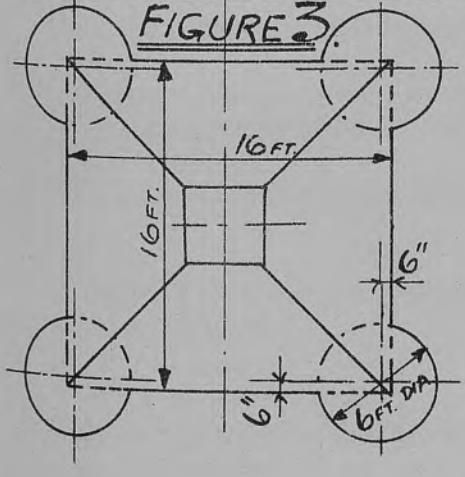


FIGURE 3.



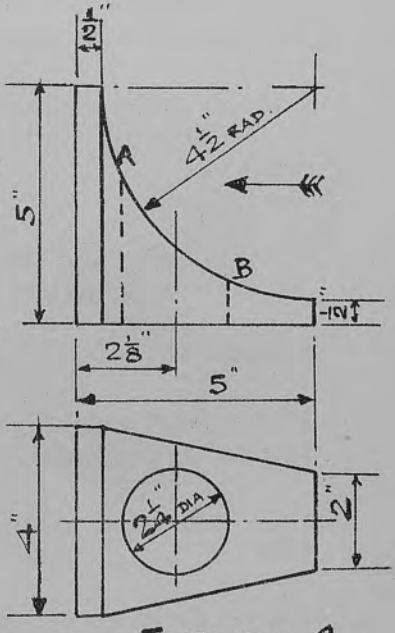


FIGURE 4.

1. Figure 1 shows the component parts of a lever type of safety valve, also an assembly view of the valve.

Make a full-size drawing showing the various parts assembled together. The following views are to be drawn :—

(*a*) an elevation, as shown in the assembly view, with the body and valve shown in section, the other parts shown in outside view ;

(*b*) a plan of one half of the assembly, taken on the longitudinal centre line, in outside view.

The drawings should be made in bold outline and the section-lining in lighter outline. The title should be neatly printed. No projection lines and no dimensions should be shown on the drawing. **(50)**

N.B.—The dimensions to the left of the assembly view, viz., $4\frac{1}{2}$ inches and 9 inches respectively, refer to the distance from the side and top of your drawing paper, and determine the position of your drawing on the paper.

2. Figure 2 shows a wheel guard for a machine.

Draw this guard (full size) showing clearly how the centres of all arcs are obtained.

Mark all tangent and contact points by a heavy dot and show by heavy construction lines how they are obtained.

Do not give dimensions. **(10)**

Either

3. Figure 3 shows the elevation and plan of the pyramidal top of a square tower and of four conical corner turrets.

Draw (to a scale of $\frac{1}{2}$ inch represents 1 foot), *for one corner only* :—

(*a*) the two views given, showing in plan the curve of interpenetration of the pyramidal and conical roofs ;

(*b*) a development of the covering for the conical roof. **(40)**

Or

4. Figure 4 shows a cast steel piece for taking the shock of moving machinery.

Draw (full size) :—

(*a*) the two views given ;

(*b*) an elevation in the direction of the arrow ;

(*c*) a development of part of the curved surface, showing only the hole, from A to B. **(40)**

SCIENCE

Lower Grade—(Geography)

Wednesday, 23rd March—9.30 A.M. to 12 NOON

Seven 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, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing.

Section A

The whole of this Section should be attempted.

N.B.—*Section A consists of* THREE *questions.*

1. On the accompanying map of Scotland—

   (*a*) Name the following :—Kintyre, the Trossachs, the Minch, the Spey, the Annan.

   (*b*) Mark and name an important coal-port on the east coast, and put the letter C in brackets after it to denote coal. Similarly mark and name the following, in each case placing the appropriate letter after the name :—a town that manufactures cotton thread, (T) ; a town famous for the manufacture of knitting wool, (W) ; an important fishing-town of the north (other than Aberdeen or Stornoway), (F) ; an important holiday centre of the western highlands, (H) ; a town largely engaged in some part of the aluminium industry, (A).

   (*c*) Mark with a heavy line each edge of the rift valley of the Central Lowlands.

   (*d*) Shade lightly those parts of Scotland whose average annual rainfall is less than 30 inches.

   (*e*) Mark with a dot, and name, Glasgow, Aberdeen and Stornoway.

(*f*) Insert carefully the L.N.E.R. and L.M.S.R. routes from Glasgow to Aberdeen. Indicate also the usual route from Aberdeen to Stornoway, naming the towns where one would change trains or change from train to ship. **(15)**

2. On the accompanying map of Europe and the Mediterranean—

(*a*) Name Cyprus, Finland, and the rivers Tagus, Vistula and Rhone.

(*b*) Mark and name Brindisi, Hamburg, Algiers, Buda-Pest, Bordeaux.

(*c*) Draw a line, about an inch long, which begins at Algiers and continues in a northerly direction.

(*d*) Shade an area of Western Europe that is below sea-level.

(*e*) Mark and name three ports (one in North Russia, one on the Baltic and one on the Black Sea), that are regularly closed to shipping for some part of the year as a result of ice.

(*f*) Write DRY over the driest part of Western Europe and over the driest part of Eastern Europe.

(*g*) Write COAL over the Ruhr and the Donetz coalfields.

(*h*) Write IRON to show the location of *one* important iron-ore field in *each* of the countries, Sweden, France and Spain. **(15)**

3. In the diagram on the reverse side of the map sheet, the dots in any row or column represent weather stations 100 miles apart. The figures beside the dots record the atmospheric pressure, in millibars, at these stations at a certain time.

(*a*) Draw, *on that diagram*, a pressure map of the area, inserting the isobars corresponding to 995, 1000, 1005 and 1010 millibars ;

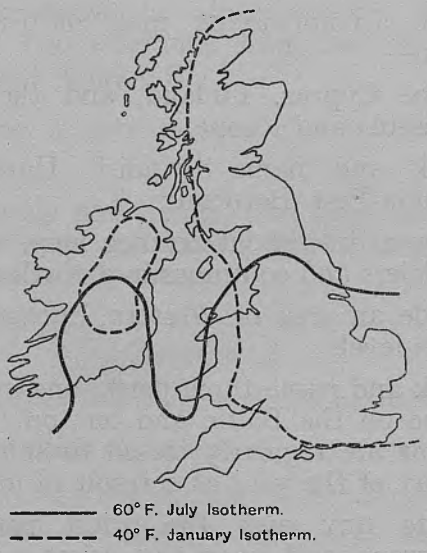
(*b*) State, *in the space provided for your answer below the diagram*, whether your map depicts a depression or an anticyclone. **(10)**

Section B

Two *questions should be attempted from this Section.*

4. Give an account of the work of the sea as an agent of erosion and of deposition. (15)

5.



The above map illustrates the trend of the summer and winter isotherms in the British Isles.

(*a*) Explain why the winter isotherms tend to have a north-south direction and the summer isotherms to have an east-west direction.

(*b*) Explain the great bends of the summer isotherms. (15)

6. Select any mountain situated in a mild, warm or hot country and give a brief explanatory account of the vegetation that would be observed if one made an ascent from the base to the summit. (15)

7. Contrast the diet of the people of Elizabethan England with the diet of the people to-day, and give a broad explanatory account of the changes that have taken place. (15)

8. Give a brief account of the main stages of the discovery and exploration of *either* Australia *or* Africa south of the Equator. (15)

SECTION C

Two *questions should be attempted from this Section.*

9. "Large ports are frequently as far inland as possible; on the other hand packet stations are generally situated on the coast, sometimes even on peninsulas." Examine this statement and illustrate your answer by examples taken from Great Britain and Europe. **(15)**

10. Give an account of the utilisation of land in the counties immediately to the north and north-east of London, showing by your answer that you realise the importance of (i) climate, (ii) soils and subsoils and (iii) the nearness of the London market. **(15)**

11. "The European Plain, from western Holland to the Ural Mountains and including Denmark, is one natural region."

How far would you agree with this statement? **(15)**

12. Describe and explain the density-distribution of population in Canada *or* Australia *or* the Union of South Africa. Illustrate your answer by a sketch-map. **(15)**

13. "Most of the ships which trade in or through the Indian Ocean belong to Britain, Japan, Holland or France."

Select *two* of these countries and explain why the Indian Ocean should be an important highway for their shipping. **(15)**

SCIENCE

HIGHER GRADE—(GEOGRAPHY)

Wednesday, 23rd March—9.30 A.M. to 12 NOON

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, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing.

Section A

The whole of this Section should be attempted.

1. The accompanying map is part of the one-inch Land Utilisation map of England. After studying the map, answer the following :—

(*a*) Write a short general account of the physical geography of the valley systems (including the lakes) shown on the map.

(*b*) Describe and, as far as you can, account for the distribution of the chief types of vegetation within the area.

(*c*) What information regarding the occupations of the inhabitants of the region can be deduced from the map ?

(*d*) Account for the position of Keswick and comment upon the rail and road routes that proceed westwards and north-westwards from Keswick. (36)

Section B

Two *questions should be attempted from this Section.*

2. Draw a sketch map of the Atlantic Ocean and mark on it the main ocean currents. Describe how these currents are related to the main wind-systems. (16)

3. " When studying the vegetation, natural or cultivated, of a region, the geographer requires to know (*a*) the mean annual rainfall, (*b*) the extent of variation from the average and (*c*) the seasonal distribution of the precipitation." Show, with reference to well-chosen examples, the importance of each of these three features of rainfall. (16)

4. Explain and illustrate how mountains may exercise, in several distinct ways, an important influence on the life and activities of people who live at some distance from them. (16)

5. (*a*) Discuss the importance of tides and tidelessness in the economic activities of man.

(*b*) Write explanatory notes on the peculiarity of the tides of the Bristol Channel and the Adriatic Sea. (16)

6. Describe, in relation to an actual example in each case, the characteristic features of *two* of the following :—

A plateau dissected by glaciation ; a karst region ; an alluvial plain. **(16)**

7. Give a brief account of the parts played by the Spaniards, the French, and the British in the exploration and early settlement of North America. **(16)**

Section C

Two *questions should be attempted from this Section.*

8. Show how the presence of America and Ireland to the west, and of Europe to the east and south of Great Britain, has influenced the situation of some of the more important British industries. **(16)**

9. Compare the climates of Edinburgh, Cork, Moscow, and Lisbon in (*a*) January and (*b*) July, and explain the main differences that you note. **(16)**

10. Give an account of the frontiers of *one* of the undernoted countries, showing how far they are geographical, and note particularly any respects in which the boundaries seem to you to be unsatisfactory. Illustrate your answer by a sketch map.

Austria, Czechoslovakia, Germany, Poland, Rumania. **(16)**

11. Compare the modes of life of the natives of the Congo forest and of the savanna lands of Sudan, showing how far geographical conditions account for the differences you mention. **(16)**

12. Compare and contrast with regard to climate and agricultural activities :—

(*a*) Northern California and the Central Chilean Plain ;
or
(*b*) the sea margins of Natal and New South Wales ;
or
(*c*) Jamaica and Java ;
or
(*d*) Egypt and the southern Mississippi States of U.S.A.;
or
(*e*) the lowlands round Peiping (Pekin) and the lowlands round Canton. **(16)**

SCIENCE

HIGHER GRADE—(PHYSICS)

Wednesday, 23rd March—1.0 P.M. to 3.30 P.M.

Not more than SIX questions should be attempted. Two, but not more than two, of these must be taken from Section I (Mechanics), and the remainder from not fewer than two other Sections.

Answers should, wherever possible, be illustrated by carefully drawn diagrams of reasonable size.

16 *marks are assigned to each question in Section I, and* 17 *to each question in Sections II, III and IV.*

Mathematical tables will be supplied to those who desire them.

Before handing in their Examination books candidates should enter in the space provided on the front cover the numbers of the questions they have attempted.

N.B.—Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing.

SECTION I (MECHANICS)

Two, *but not more than two, questions from this Section must be attempted.*

1. State the principle of moments.

Describe the experiment you would carry out to verify this principle in the case of three non-parallel coplanar forces.

A light rod AB, 6 feet long, is hinged to a wall at A. A weight of 4 pounds is suspended from D, a point on the rod 4 feet from A. The rod is kept in a horizontal position at right angles to the wall by means of a string BC attached to a point C on the wall vertically above A, and such that the angle ABC is 30°.

Find by the principle of moments the tension in the string.

2. Explain what is meant by the centre of gravity of a body.

A square cardboard lamina of side 4 inches is divided into four equal parts by joining the mid-points of opposite sides. One of these parts is cut away. How would you determine the centre of gravity of the remainder experimentally ?

Calculate the actual position of the centre of gravity.

3. Name and define a unit of work.

Define efficiency in terms of work and use your definition to establish the relationship between mechanical advantage, velocity ratio, and efficiency.

Draw a diagram of a block and tackle whose velocity ratio is 6. In an experiment with a block and tackle, whose velocity ratio is 6, the following results were obtained :—

LOAD in pounds	4	10	14	18	27	35
EFFORT in pounds	1·5	2·8	3·5	4·2	5·9	7·5

Choosing a suitable scale, draw a graph showing the relationship between the load and the efficiency. State clearly the information furnished by your graph.

4. What is meant by (*a*) uniform velocity and (*b*) uniform acceleration ?

Describe briefly the experiment you would perform to verify the relationship between the distances travelled by a body moving from rest under constant acceleration and the times taken to describe these distances.

A ball is projected up a smooth plane inclined to the horizontal at 30° with a velocity of 40 ft. per second. What distance will it travel up the plane before coming to rest ?

($g = 32$ ft. per sec. per sec.)

SECTION II (HEAT AND HYDROSTATICS)

5. State Boyle's Law and sketch the apparatus you would use to test its truth at several different pressures above and below atmospheric pressure. Indicate briefly how you would use the apparatus.

In an experiment with Boyle's Law apparatus the length of the column of enclosed air was 10 cm. when measured at atmospheric pressure, viz., 74 cm. mercury.

Calculate (*a*) the length of the column of enclosed air when the mercury in the open limb was 8 cm. above that in the closed limb, and (*b*) the difference in the levels when the enclosed air column was half its original length.

6. Describe an experiment to show the relation between the pressure at a point in a liquid and the distance of that point below the surface of the liquid.

Use the information derived from such an experiment to account for the upthrust on a body immersed in a liquid.

A hydrometer is made by adding shot to a test tube whose uniform cross-section is 2 sq. cm. If it sinks to a depth of 10 cm. in a liquid whose S.G. is 1·1, find the weight of the loaded test tube.

To what depth would it sink in a liquid of S.G. 0·88?

7. Distinguish between the *real* and the *apparent* coefficient of thermal expansion of a liquid.

Describe the method by which you could determine the real coefficient of expansion of turpentine.

On a centigrade thermometer the distance between the readings 0° C. and 100° C. is 30 cm., and the area of cross section of the narrow tube containing the mercury is 0·0015 sq. cm. Find the total volume of mercury in the thermometer at 0° C. Coefficient of *linear* expansion of glass is 0·000009, and the real coefficient of *cubical* expansion of mercury is 0·00018.

8. Explain the difference between specific heat and thermal capacity.

In an experiment, 30 gm. of granite were placed in a test-tube that was heated by standing in boiling water. The granite was transferred to a calorimeter weighing 50 gm. in which there were 35 gm. of water at 10° C. The temperature of the water rose to 25° C. Find (*a*) the

specific heat of granite and (*b*) the thermal capacity of the granite used. What errors are likely to have been introduced during the experiment ? If you were performing the experiment how would you seek to minimise the errors ?

(Specific heat of copper, 0·1.)

SECTION III (SOUND AND LIGHT)

9. Describe and explain what takes place when a fiddle bow is drawn across a tuning fork and you hear the note.

You are supplied with two exactly similar tuning forks sounding C = 256. Show how you would use them to demonstrate "beats," and explain fully the conclusion you would reach if beats occurred at the rate of four per second.

10. Write a short note on sound waves and light waves, drawing attention to points of difference between them.

Describe an experiment by which you could determine the velocity of sound.

At a distance of 1,400 feet from a vertical cliff face a man fires a gun and hears the echo 2·5 seconds later. If the temperature of the air is 15° C., find the velocity of sound at 0° C.

11. Draw a diagram of a concave mirror showing the principal axis, the focus, and the centre of curvature.

How would you find the radius of curvature of a concave mirror ? An object is placed perpendicular to the principal axis of a concave mirror, focal length 4 cm. Calculate the distance of the image from the mirror when the object is placed at (*a*) 6 cm. and (*b*) 2 cm. from the mirror. In each case verify the answer by a carefully drawn diagram, and state whether the image is real or virtual. If the height of the object is 3 cm. what is the height of the image in each case ?

12. Give a brief account of the eye as an optical instrument. By means of a diagram explain the defects known as long sight and short sight, and indicate how they may be corrected by spectacles.

A long-sighted person has a near point 15 inches from the eye. State the kind of lens required to enable the person to read print with comfort at a distance of 10 inches, and find the focal length of the lens.

SECTION IV (MAGNETISM AND ELECTRICITY)

13. Explain the following terms :—

(*a*) the pole strength of a magnet, (*b*) the moment of a magnet.

A magnet whose moment is 90 has an effective length of 10 cm. Find from first principles the magnitude and direction of the field due to the magnet alone at a point P, distant 10 cm. from both the north and south poles of the magnet.

Show how a second magnet could be placed so that it would neutralise the effect of the earth's field at the point P. How would you use this to check the direction of the field at P due to the first magnet alone ?

14. Define the absolute unit of (*a*) potential difference (*b*) current. Show how the absolute unit of resistance is derived from these two absolute units. How are the volt, ampère and ohm related to the corresponding absolute units ?

Detail the method you would adopt to find the specific resistance of a metal at 30° C. Make a diagram of the circuit. Name the parts and briefly indicate the use of each.

15. Define the terms coulomb and joule.

Describe in detail the experiment you would carry out to show how the heat generated by an electric current in a conductor varies with the resistance of the conductor. Two points A and B, between which there is a potential difference of 10 volts, are connected by two wires of resistance 2 ohms and 3 ohms respectively. Calculate the total heat generated per minute when the wires are connected (*a*) in series (*b*) in parallel.

(J = 4·2 joules per calorie.)

16. Describe the parallel plate condenser, and explain the term capacity as applied to a condenser. On what factors does the capacity of a condenser depend ? Explain by the help of a diagram the principle of either (*a*) a parallel plate condenser of variable capacity or (*b*) a small parallel plate condenser having a large fixed capacity.

SCIENCE

HIGHER GRADE—(PURE ZOOLOGY)

Friday, 25th March—1.0 P.M. to 3.0 P.M.

FIVE questions in all should be attempted.

Answers should, wherever possible, be illustrated by diagrams of reasonable size.

20 marks are assigned to each question.

N.B.—Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing.

1. What are the principal characteristics of living things? Show how the different characteristics you mention are exhibited by Amœba.

2. Compare Hydra and the earthworm in regard to their structure as shown in transverse sections and state why the earthworm may be regarded as a higher type of animal than Hydra.

3. Show how the structure of an animal is adapted to the life it leads. Use (*a*) a fish and (*b*) a rabbit to illustrate your answer.

4. Write an account of the life-history of **either** (*a*) the housefly; **or** (*b*) the crayfish or lobster.

5. Name an example of each of the following groups, and, using the animals chosen as illustrations, indicate the principal characteristics of the group to which each belongs:—Birds (Aves); Segmented worms (Annelida); Echinoderms; Molluscs.

6. State where *four* of the following are to be found in the rabbit or other mammal and give a short account of the functions of each of the four you select :—

lungs,
pancreas,
ovary,
molar teeth,
semicircular canals.

7. **Either** (*a*) State what you understand by evolution. What evidence is there to support the view that evolution has taken place ?

Or (*b*) Describe the changes that occur throughout the year in (i) the conditions affecting a pond, and (ii) the animal life in it.

SCIENCE

HIGHER GRADE—(ZOOLOGY AND HUMAN PHYSIOLOGY)

Friday, 25th March—1.0 P.M. to 3.0 P.M.

FIVE questions in all should be attempted.

Answers should, wherever possible, be illustrated by diagrams of reasonable size.

20 *marks are assigned to each question.*

N.B.—Write legibly and neatly, and leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing.

SECTION I—ZOOLOGY

1. What are the principal characteristics of living things ? Show how the different characteristics you mention are exhibited by Amœba.

2. Compare Hydra and the earthworm in regard to their structure as shown in transverse sections and state why the earthworm may be regarded as a higher type of animal than Hydra.

3. Show how the structure of an animal is adapted to the life it leads. Use (*a*) a fish, and (*b*) a rabbit, to illustrate your answer.

4. Write an account of the life-history of **either** (*a*) the housefly; **or** (*b*) the crayfish or lobster.

Section II—Human Physiology

5. How are waste materials produced in the body? What are the important waste substances, and how are they removed from the body?

6. "The bones of the skeleton act as a series of levers." Illustrate this statement by describing how any one bone of the body is related to other bones and to the muscles that move it.

7. **Either** (*a*) What do you understand by a reflex action? What structures are involved and what are the functions of the various units in a reflex action?

Or (*b*) Explain how health may be influenced for good or ill by the conditions under which a person lives.

MUSIC

Lower Grade

Friday, 25th March—9.30 A.M. to 11 A.M.

N.B.—Candidates must write in ink, neatly and legibly, and they must leave a space of half an inch between the lines. Marks may be deducted for bad or crowded writing. Care must be taken to make the notation clear ; notes indistinctly placed will be regarded as wrong.

The answers to Section I must be written in the space provided on this examination paper, which must be given up with the examination book. The ruled pages in the examination book may be used for rough work on these questions.

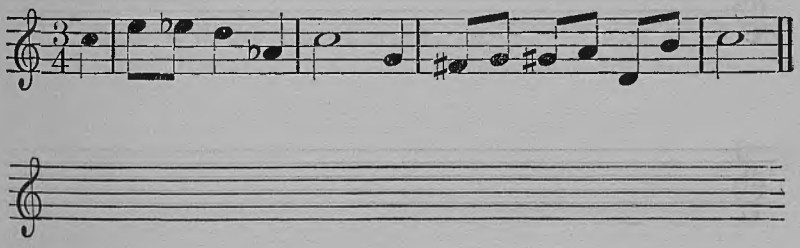
The answers to Section II are to be written in the separate book provided.

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

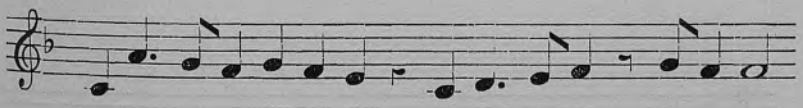
SECTION I

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

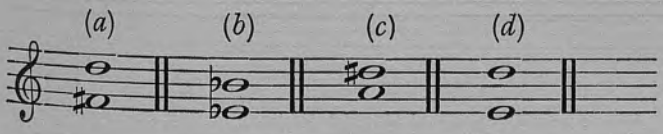
1. (*a*) Transpose these four bars of melody a major third lower. Place the necessary key-signature before your answer.



(*b*) Bar and add a time-signature to the undernoted melody.



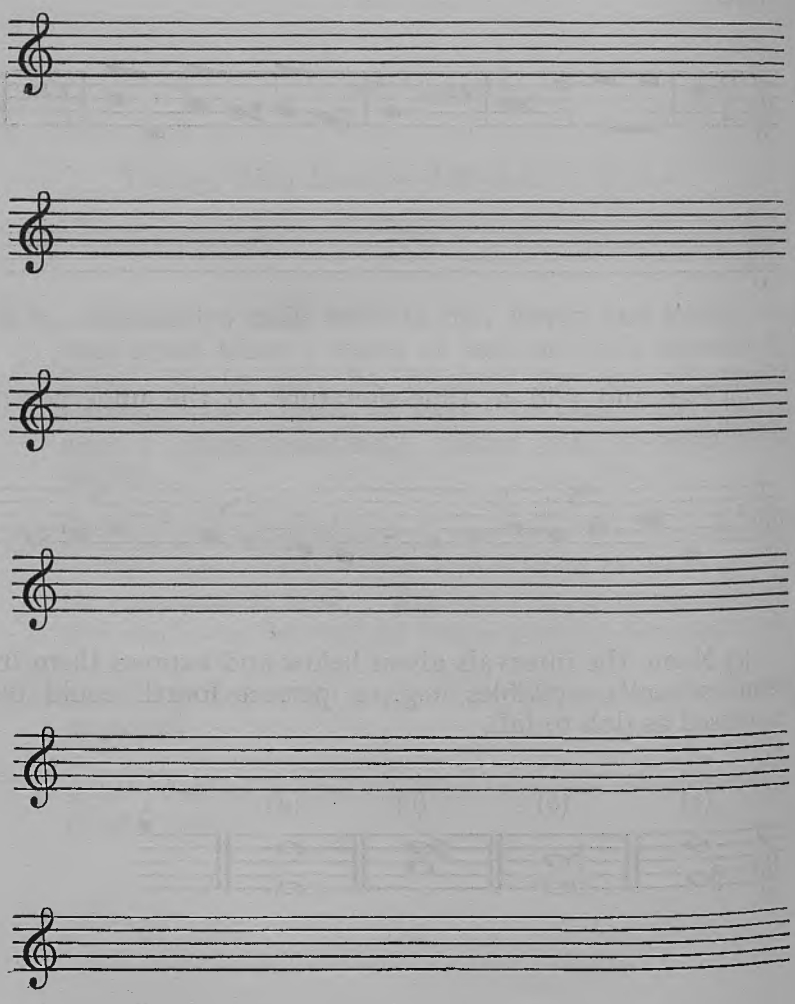
(*c*) Name the intervals given below and express them in terms of solfa syllables, e.g., a perfect fourth could be expressed as doh to fah.



(14)

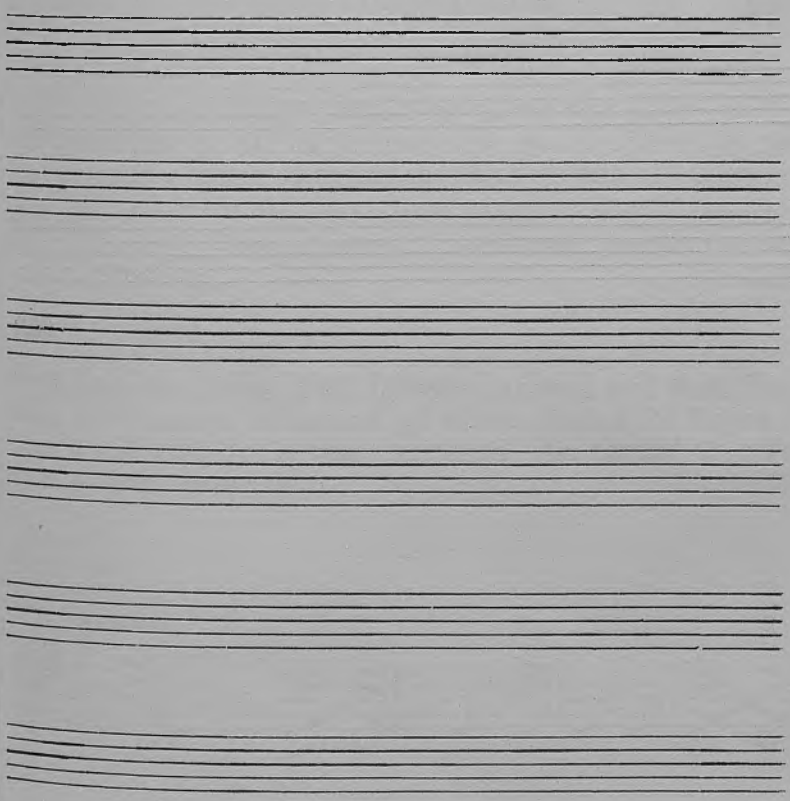
2. Name any three folk or national melodies which are contrasted in rhythm. Write the first four bars of each of the three. One example *must* be in compound time.

(16)



3. Write a melody in Staff Notation suitable to and expressive of the poetic rhythm of each of the following verses (*a*) and (*b*). Key-signatures, time-signatures, bar-lines and musical terms indicating the "pace" or "speed" of the music *must* be added and each syllable placed under the note or notes to which it is intended to be sung.

(*a*) There was a queen that fell in love with a jolly sailor bold.
But he shipped to the Indies where he could seek for gold.
All in a good sea-boat my boys, we fear no wind that blows. *Frederick York Powell.*



(*b*) (overleaf).

(*b*) When I sailed out of Baltimore
With twice a thousand head of sheep,
They would not eat, they would not drink,
But bleated o'er the deep.

William H. Davies.

(20)

SECTION II

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

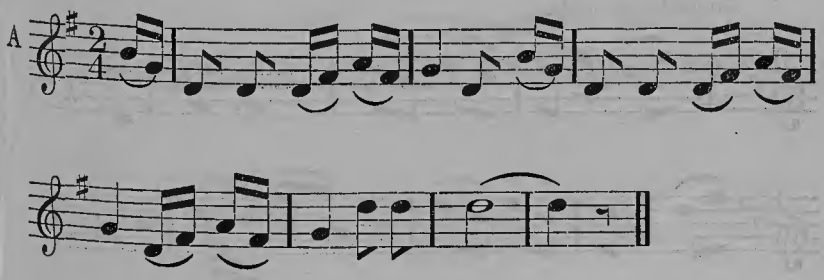
4. Name *three* composers, including one who lived in the period 1650–1750, one who lived in the period 1750–1850, and one who lived in the period 1850–1936. Mention any branch of musical composition in which each of these composers won distinction. Choose from the work of any *one* of these three composers *one* composition; tell what you know of it and quote a theme from it. **(10)**

5. Choose *five* of the following terms and state briefly what information or instruction each would convey to the performer of a piece of music to which it was attached :—

Alla breve, Molto sostenuto, Fanfare, Moto perpetuo, Fox-trot, Tempo primo, Theme-song, Improvisation, Sotto voce. **(10)**

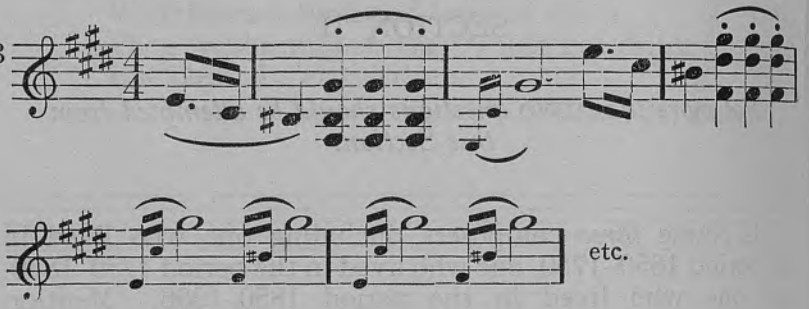
6. Choose any *five* of the following themes and state from what work each is taken and by whom (unless the theme is from a folk melody) it was composed. **Be careful to letter your answers correctly.** **(10)**

Moderato.



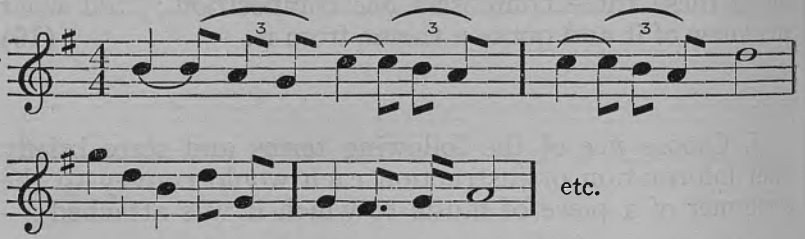
Presto agitato.

B



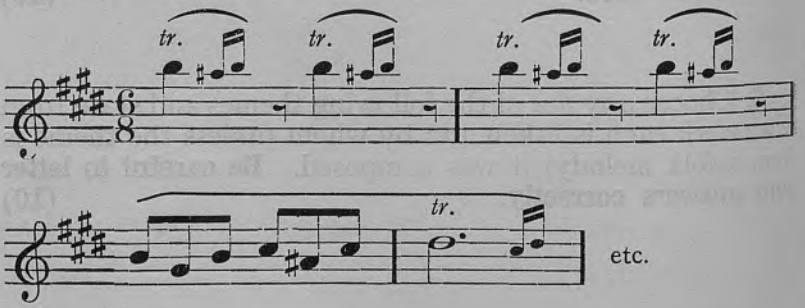
Andante con moto ma non troppo.

C



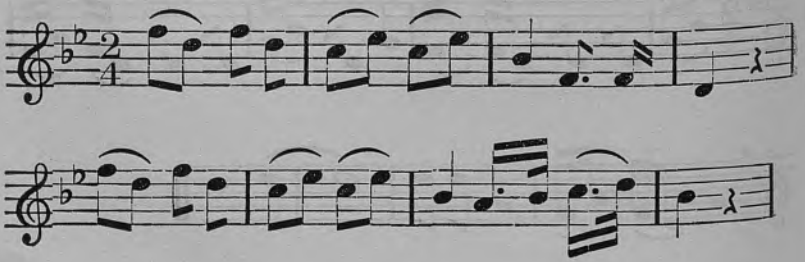
Allegretto pastorale.

D



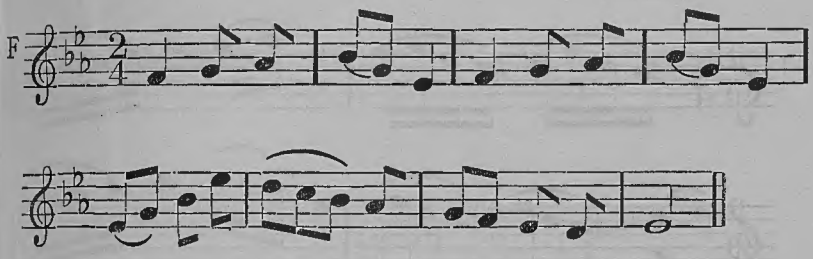
Andante con moto.

E



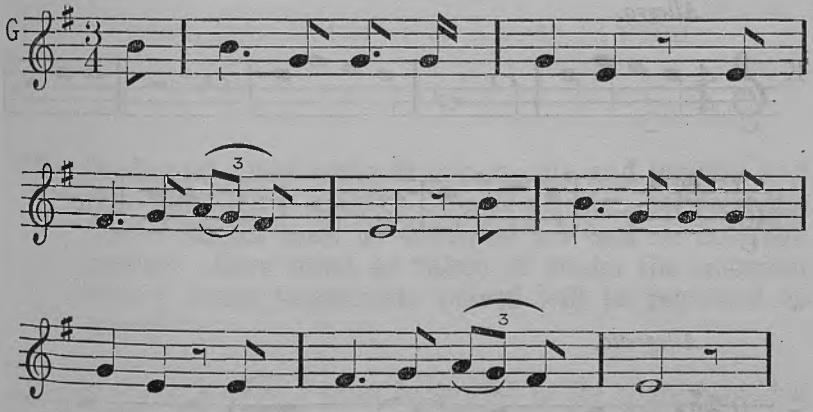
Allegretto.

F



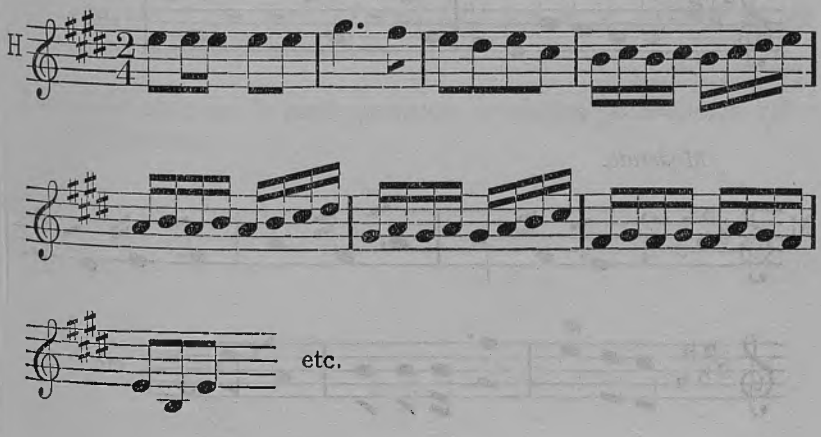
Moderato.

G



Allegro vivace.

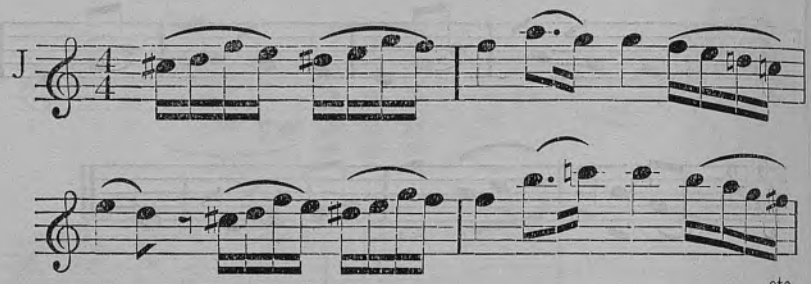
H



etc.

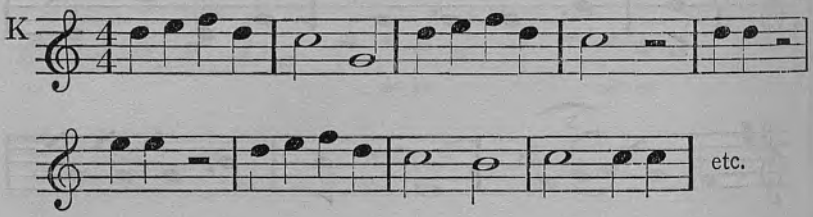
Andante.

J



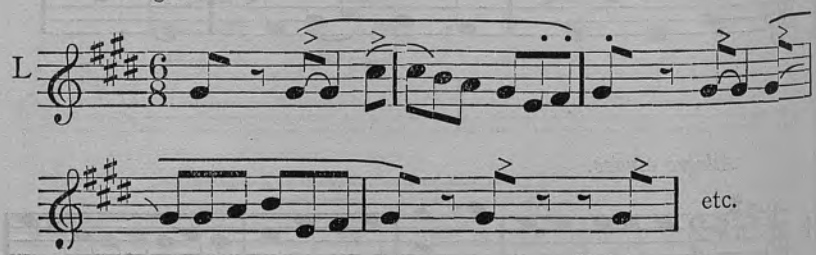
Allegro.

K



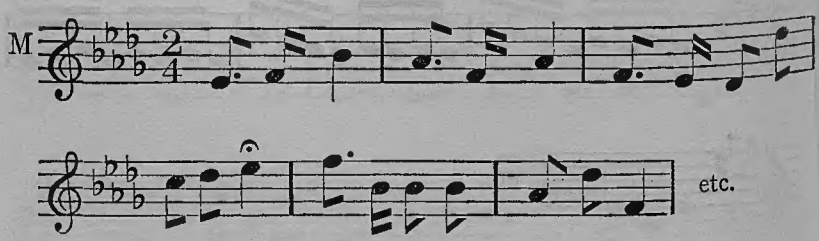
Allegretto.

L



Moderato.

M



MUSIC

HIGHER GRADE

Friday, 25th March—9.30 A.M. to 12 NOON

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The answers to Section I must be written in the space provided on this examination paper, which must be given up with the examination book. The ruled pages in the examination book may be used for rough work on these questions.

The answers to Sections II and III are to be written in the separate book provided.

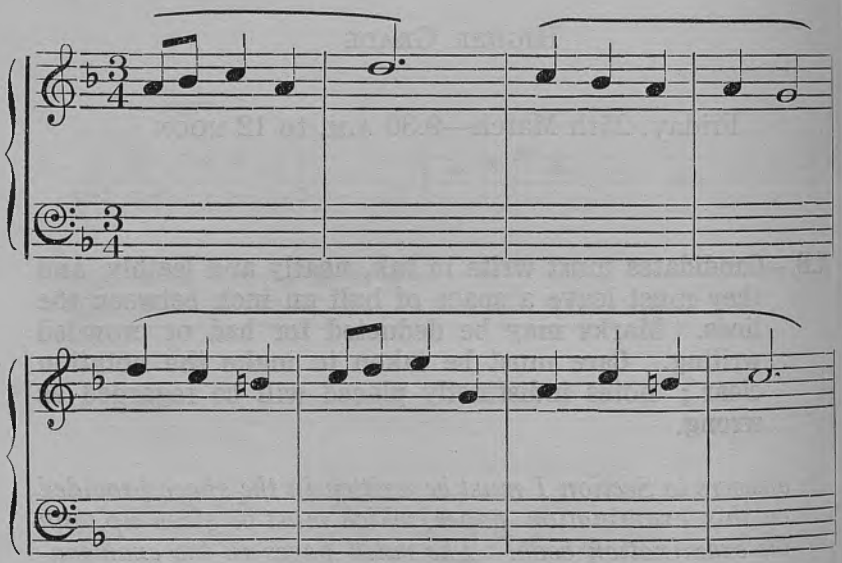
The value attached to each question is shown in brackets after the question.

SECTION I

All candidates should attempt THREE *questions from this section, and three only, of which numbers* 1 *and* 2 *are compulsory.*

1. Harmonise this portion of a melody in four vocal parts for Soprano, Alto, Tenor and Bass :—

Moderato.



(24)

2. Write a melody in Staff Notation suitable to the poetic rhythm and atmosphere of *either* of the following verses. A key-signature, time-signature and bar-lines must be added, and a musical term to indicate the tempo. Place each syllable under the note or notes to which the melody is to be sung. **Indicate the cadences by placing, in the bass clef, the two notes necessary to define these.**

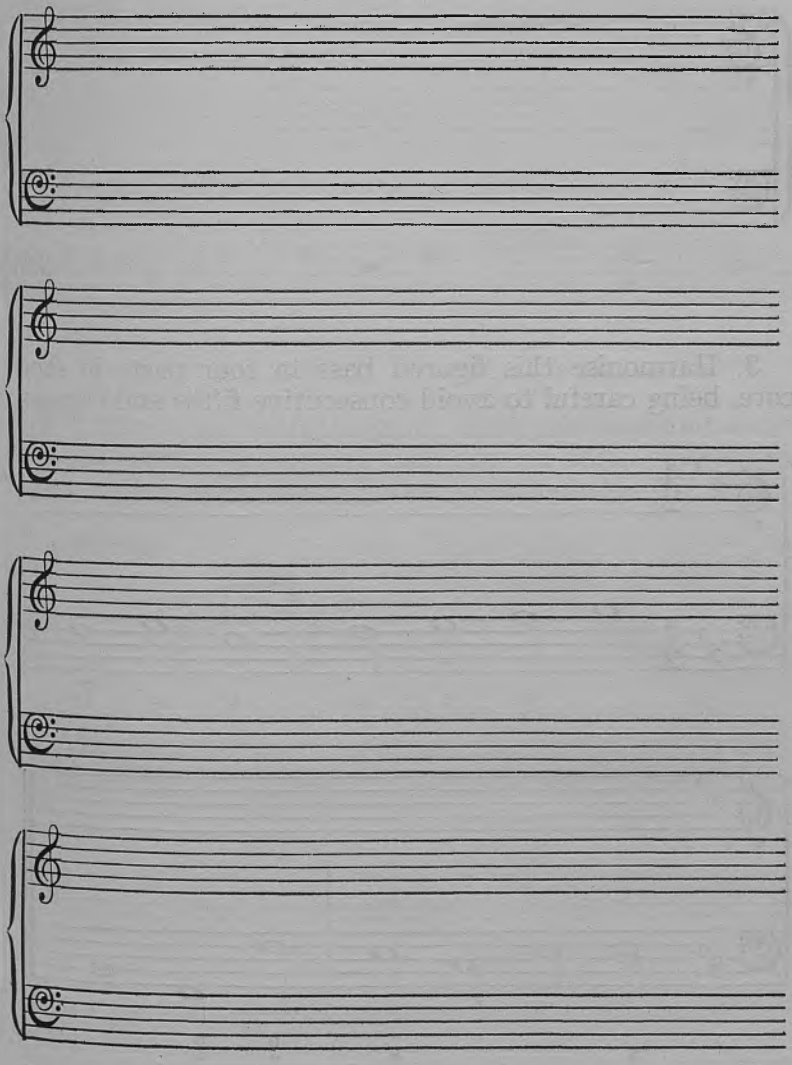
" I saw you standing at the gate,
I heard you call to me
With the wind cry and the bird cry and the far-off cry of the sea."

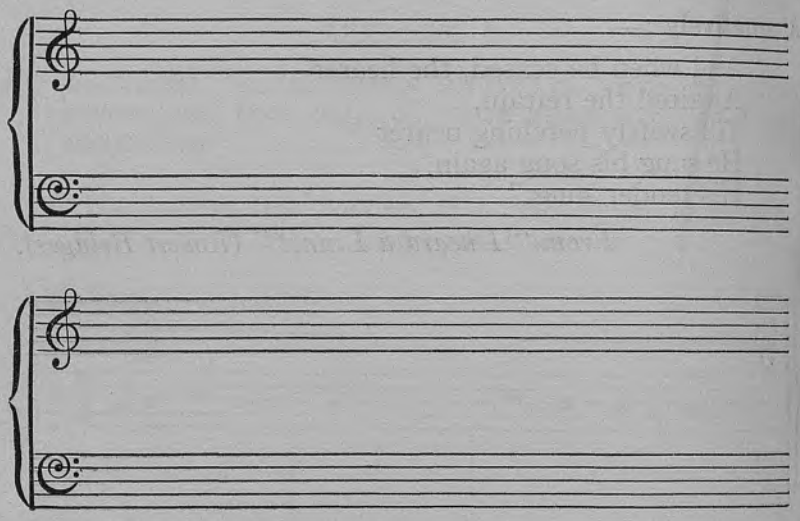
From " Peatsmoke " (Joan Rundall).

Alternatively :—

"And when he ceased, the hearer
Awaited the refrain,
Till swiftly perching nearer
He sang his song again,
His tender song."

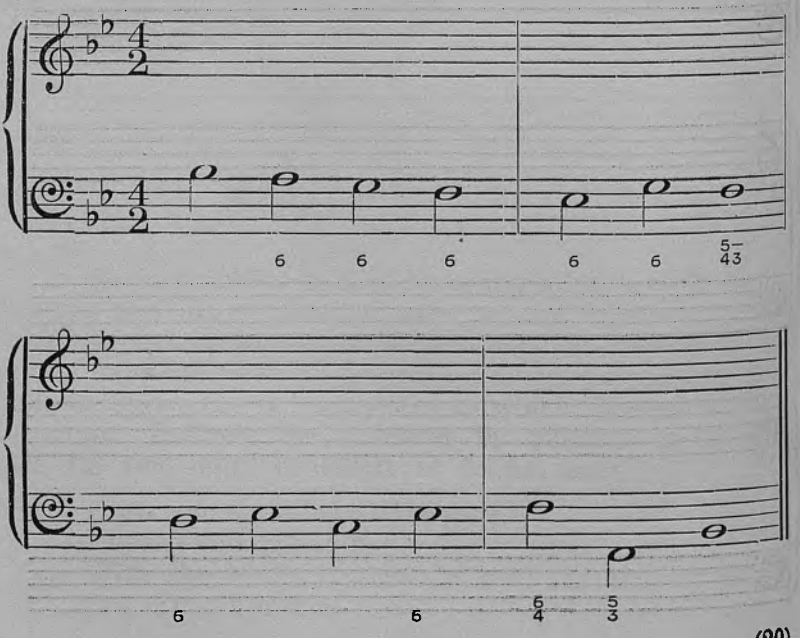
From " I heard a Linnet " (Robert Bridges).





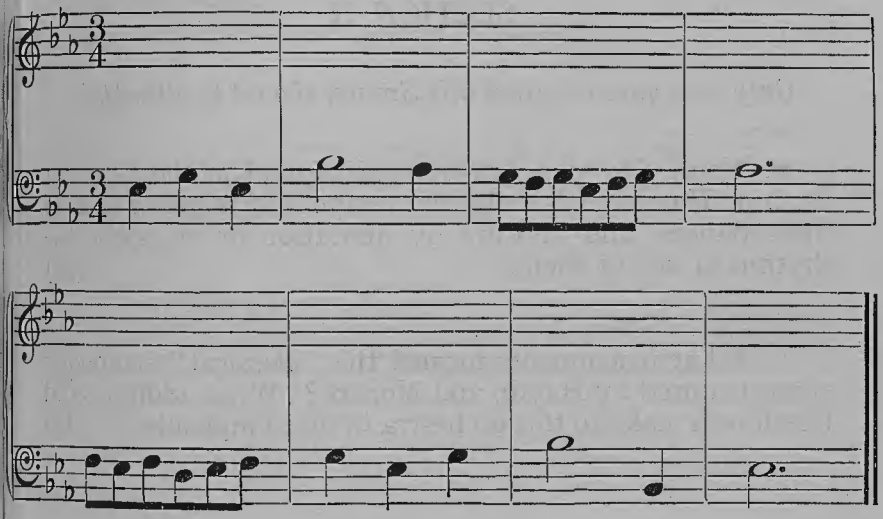
(24)

3. Harmonise this figured bass in four parts in short score, being careful to avoid consecutive fifths and octaves.



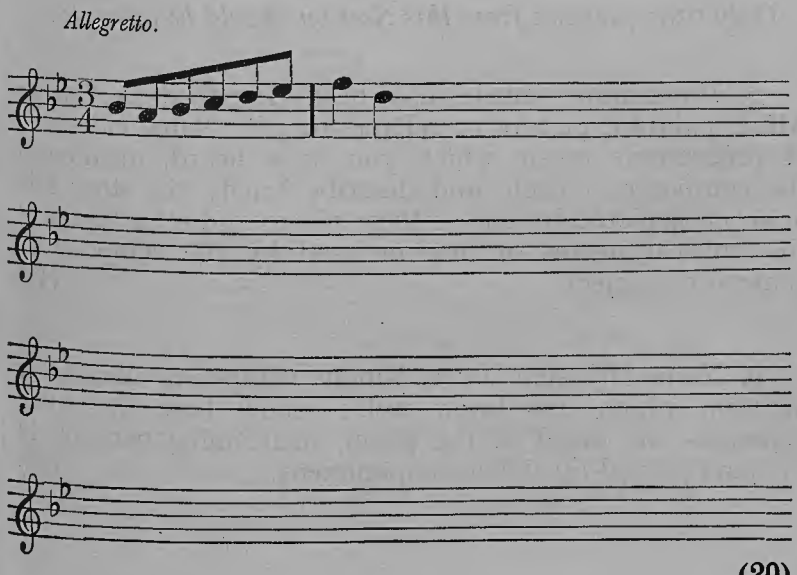
(20)

4. Add a melodious Treble to this Bass.



(20)

5. Commencing with the given bars, continue and complete this melody in not less than sixteen bars. Introduce sequence and modulation. Phrase your melody.



(20)

SECTION II

Only ONE *question from this Section should be attempted.*

6. Name *four* dances commonly found in the Suites of Bach or Handel; describe the tempo and mood of each of these dances, and indicate by quotation or otherwise the rhythm of *two* of them. (16)

7. What instruments formed the "classical" symphony orchestra used by Haydn and Mozart? What additions did Beethoven make to this orchestra in his symphonies? (16)

SECTION III

Only ONE *question from this Section should be attempted.*

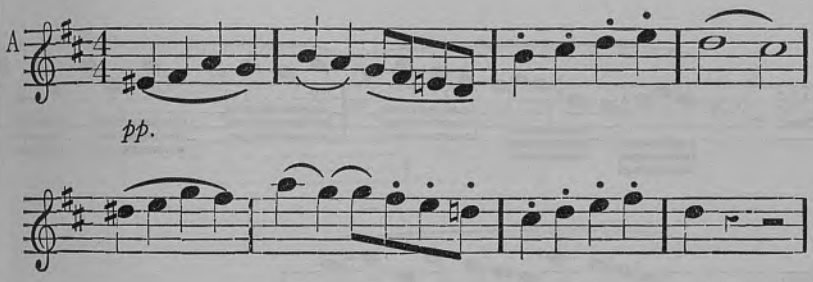
8. Programme music has been described as "music which paints a picture or tells a story." Name *two* pieces of programme music which you have heard, mentioning the composer of each, and describe briefly the story told or scene depicted by one of these pieces and refer to any of the musical means or devices used by the composer to achieve his object. (16)

9. Name any song by a famous composer, classical or modern, which you know well: show how the music expresses the mood of the poem, mentioning particularly the part played by the accompaniment. (16)

10. Choose any *five* of the following themes and state by whom each was composed and from what work it comes. **Be careful to letter your answers correctly.** **(16)**

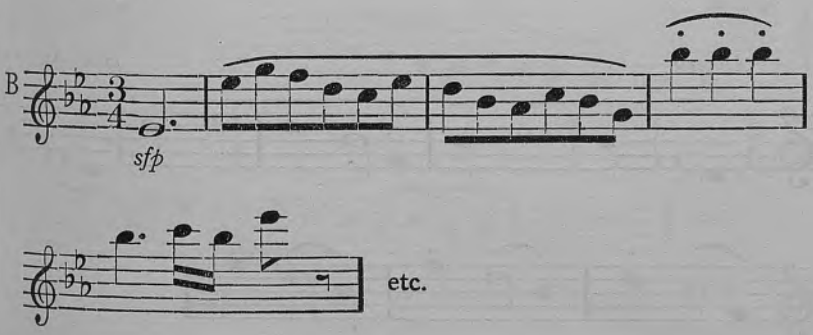
Vivace.

A



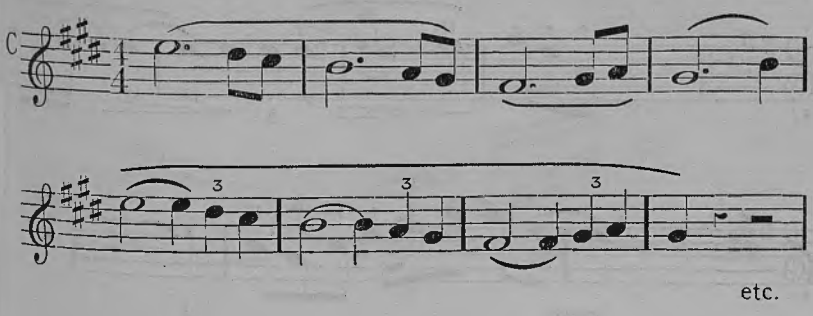
Allegro.

B



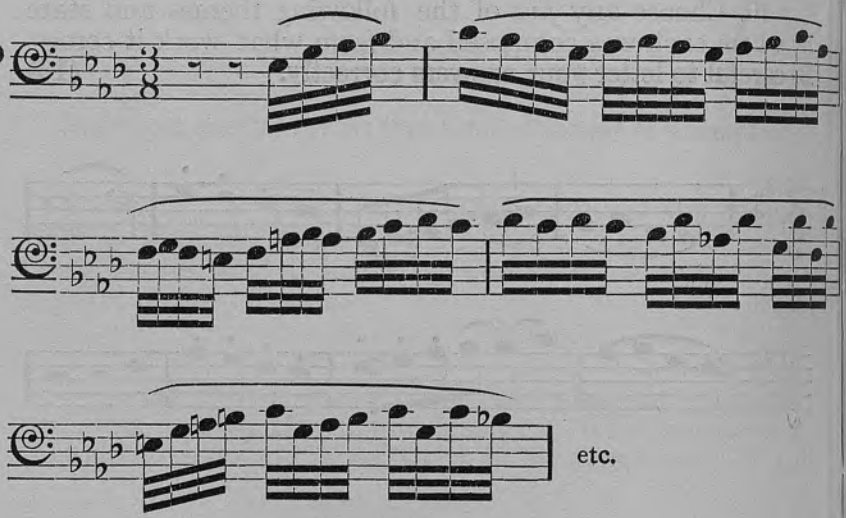
Allegro di molto.

C



Andante con moto.

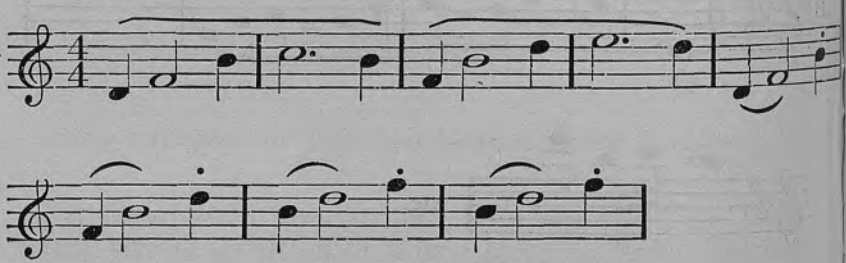
D



Allegro.

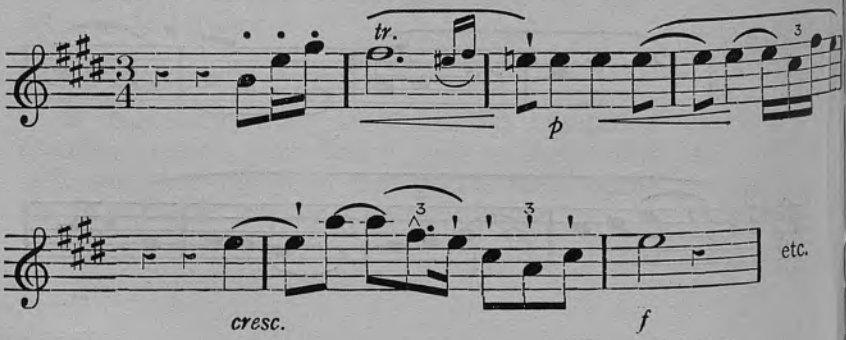
cresc. poco a poco

E



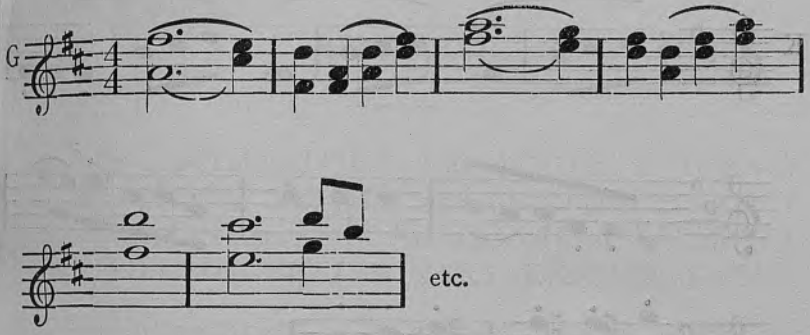
Vivace.

F



Presto.

G

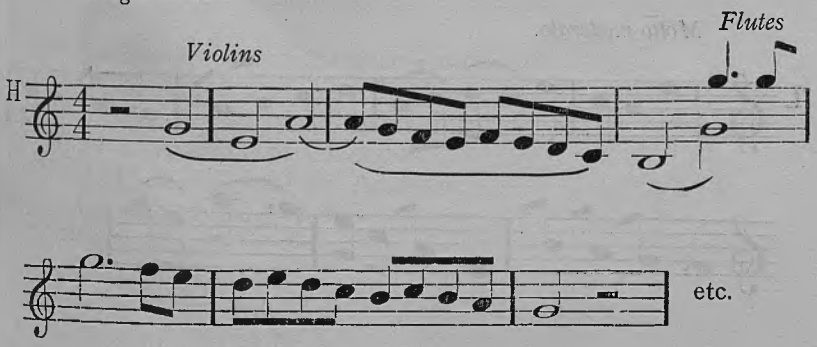


Allegro molto

Violins

Flutes

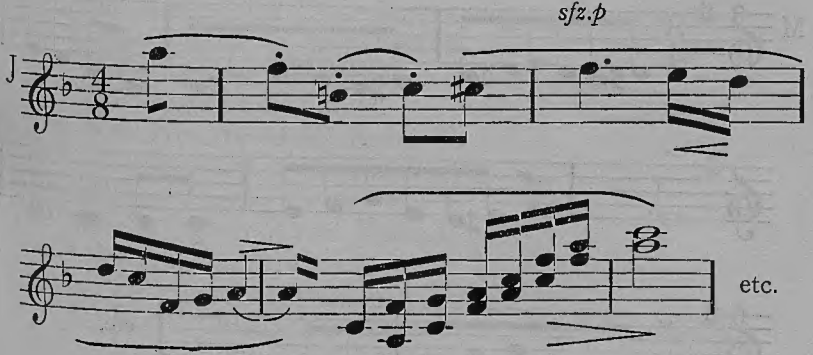
H



Commodo.

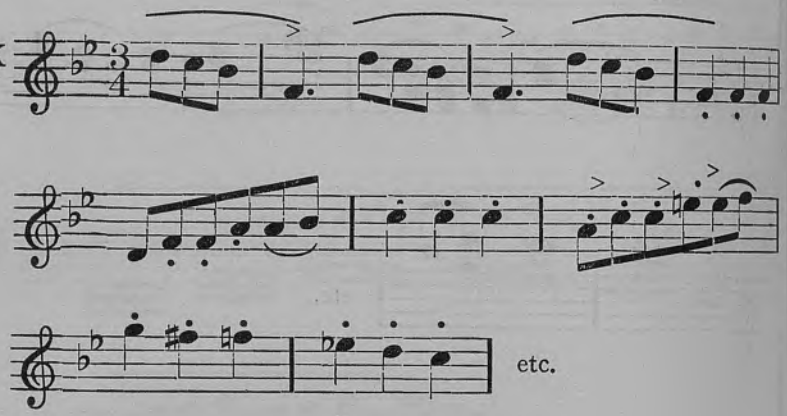
sfz.p

J



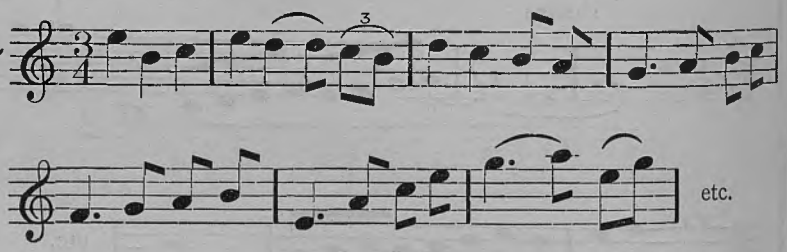
Allegro.

K



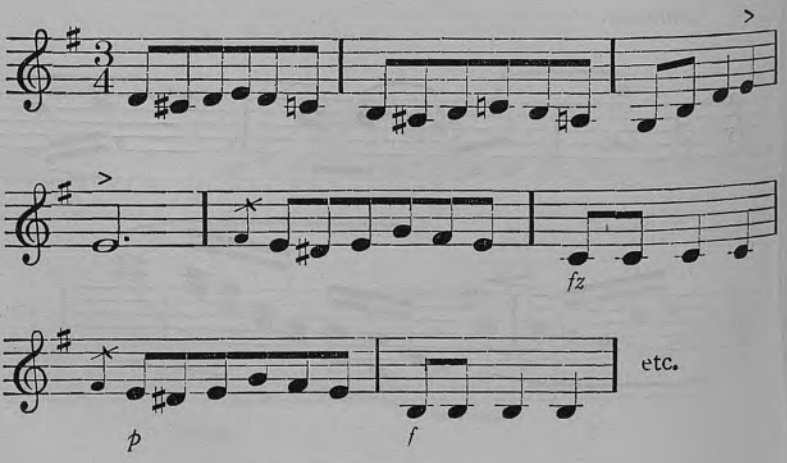
Molto moderato.

L



Tempo di Valse.

M



APPENDIX

LIST OF AUTHORITIES BY WHOM EVIDENCE OF SUCCESS AT THE LEAVING CERTIFICATE EXAMINATION IS CONDITIONALLY ACCEPTED IN LIEU OF PRELIMINARY EXAMINATIONS.

N.B.—FOR PARTICULARS AS TO THE CONDITIONS GOVERNING ACCEPTANCE REFERENCE SHOULD BE MADE TO THE REGULATIONS OF THE AUTHORITY CONCERNED.

Scottish Universities Entrance Board :
- University of Aberdeen.
- University of Edinburgh.
- University of Glasgow.
- University of St. Andrews.

University of Oxford.
University of Cambridge.
University of London.
University of Bristol.
University of Durham :
- Durham Colleges.
- Armstrong College, Newcastle-upon-Tyne.
- College of Medicine, Newcastle-upon-Tyne.

Northern Universities Joint Matriculation Board :
- University of Manchester.
- University of Liverpool.
- University of Leeds.
- University of Sheffield.
- University of Birmingham.

University of Wales.
The Queen's University of Belfast.
Girton College, Cambridge.
Imperial College of Science and Technology :
- Royal College of Science.
- Royal School of Mines.
- City and Guilds (Engineering) College.

Royal Holloway College, Englefield Green, Surrey.
Examiners of the General Council of Solicitors.
The Law Society.
The General Council of Medical Education and Registration of the United Kingdom.
The Dental Board of the United Kingdom.
The Joint Examinations held by :
The Royal College of Physicians of Edinburgh.
The Royal College of Surgeons of Edinburgh.
The Royal Faculty of Physicians and Surgeons of Glasgow.
The Examining Board in England by the Royal College of Physicians of London, and the Royal College of Surgeons of England.
The Pharmaceutical Society of Great Britain.
The Chartered Accountants of Scotland.
The Institute of Chartered Accountants in England and Wales.
*The Society of Incorporated Accountants and Auditors.
*The Corporation of Accountants, Limited.
*The London Association of Certified Accountants.
*The Institute of Municipal Treasurers and Accountants (Incorporated).
The Institute of Company Accountants, Limited.
The Faculty of Actuaries in Scotland.
The Institute of Actuaries.
The Chartered Insurance Institute.
The Institute of Bankers.
The Institute of Bankers in Scotland.
The Chartered Institute of Secretaries.
The Royal Sanitary Institute and Sanitary Inspectors' Examination Joint Board.
*The Royal Sanitary Association of Scotland.
The Poor Law Examination Board for Scotland.
The Chartered Surveyors' Institution.
The Auctioneers' and Estate Agents' Institute of the United Kingdom.
The Royal Institute of British Architects.

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* Evidence of having obtained the Day School Certificate (Higher) is also accepted by these Authorities ; and by the

Air Ministry—for entry as Aircraft Apprentice and as Apprentice Clerk, Royal Air Force.

The Institution of Civil Engineers.
*The Institute of Cost and Works Accountants.
The Institution of Mechanical Engineers.
The Institution of Municipal and County Engineers.
The Institute of Chemistry of Great Britain and Ireland.
The National Froebel Union.
The Institute of Physics.
The Royal College of Veterinary Surgeons.
The British Optical Association.
The Chartered Institute of Patent Agents.
The Library Association.
The Textile Institute.
*The Institute of Transport.
*The Chartered Society of Massage and Medical Gymnastics.

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* See footnote on page 124.

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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 from HIS MAJESTY'S STATIONERY OFFICE (Scottish Branch), 120, George Street, Edinburgh 2, or through any bookseller.

Reports, etc., 1936–37. Price 12*s.* 6*d.*; post free, 13*s.* *This Volume contains Reports, Statistics, Regulations, Minutes, Circulars, Leaving Certificate Examination Papers, etc.*

Report of the Committee of Council on Education in Scotland, 1937. (Cmd. 5709.) Price 2*s.*; post free, 2*s.* 2*d.*

Sixty-fourth Annual Report by the Accountant (Accounts for the Year 1935–36). Price 6*d.*; post free, 7*d.*

General Reports for the Years 1933–36 on Education in Scotland, by His Majesty's Chief Inspectors of Schools. Price 2*s.*; post free, 2*s.* 2*d.*

Report and Statistics relating to the Training of Teachers, 1928–30. Price 9*d.*; post free, 10*d.*

Statistical Lists of Grant-earning Day Schools and Institutions, and of Continuation Classes, Adult Education Classes and Central Institutions for the Year 1936–37. Price 2*s.*; post free, 2*s.* 2*d.*

Statistics in respect of Education Areas, for the Year 1936–37. Price 4*d.*; post free, 5*d.*

Lists of Education Authorities, Secondary Schools, etc., with names and addresses of correspondents, 1938. Price 6*d.*; post free, 7*d.*

Circular 96 (Administrative Programme of Educational Development.) (January, 1936.) Price 2*d.*; post free, 2½*d.*

Circular 97 (School Broadcasting). (January, 1936.) Price 1*d.*; post free, 1½*d.*

Circular 98 (Physical Health and Physical Well-being). (March, 1936.) Price 2*d.*; post free, 2½*d.*

Circular 99 (Provisions of the Education (Scotland) Act, 1936). (July, 1936.) Price 1*d.*; post free, 1½*d.*

Circular 100 (Technical Education in Continuation Classes). (August, 1936.) Price 2*d.*; post free, 2½*d.*

Circular 101 (Appends Order of 10th August, 1936, fixing Appointed Day.) (August, 1936.) Price 1*d.*; post free, 1½*d.*

Circular 103 (Schemes for the Provision of Education). (December, 1936.) Price 1*d.*; post free, 1½*d.*

Circular 104 (School Population in Scotland). (March, 1937.) Price 2*d.*; post free, 2½*d.*

Circular 105 (Education and Care of Mentally and Physically Defective Children). (September, 1937.) Price 2*d.*; post free, 2½*d.*

Circular 107 (Accidents in School Laboratories and in Rooms used for Practical Work). (August, 1937.) Price 1*d.*; post free, 1½*d.*

Circular 109 (School Attendance. Commencing and Leaving Dates). (October, 1937.) Price 1*d.*; post free, 1½*d.*

Circular 112 (School Attendance. Limitation of Power of Exemption). (December, 1937.) Price 1*d.*; post free, 1½*d.*

Circular 114 (Suggestions for Procedure with regard to School Attendance under the Education (Scotland) Act, 1936, sections 1–3 and 5). (March, 1938.) Price 4*d.*; post free, 5*d.*

Secondary Schools (Scotland) Regulations, 1923. S.R. & O., 1923, No. 929, S. 59. Price 2*d.*; post free, 2½*d.*

Code of Regulations for Day Schools in Scotland. S.R. & O., 1923, No. 928, S. 58, as amended by S.R. & O., 1928, No. 329, S. 19, and by S.R. & O., 1933, No. 466, S. 25. Price 4*d.*; post free, 5*d.*

Amendment (1935) of the Code of Regulations for Day Schools in Scotland and of the Secondary Schools (Scotland) Regulations, 1923. S.R. & O., 1935, No. 1325, S. 68. 1*d.*

Day Schools (Scotland) Code Minute, 1939. Draft S.R. & O. Price 4*d.*; post free, 5*d.*

Memorandum Explanatory of the Draft Day Schools (Scotland) Code, 1939. Price 4*d.*; post free, 5*d.*

Code of Regulations for Continuation Classes, 1936. S.R. & O., 1936, No. 791, S. 28. Price 5*d.*; post free, 6*d.*

Adult Education (Scotland) Regulations, 1934. S.R. & O., 1934, No. 1343, S. 72. Price 2*d.*; post free, 2½*d.*

A Further List of Publications appears on page 4 of Cover.

Regulations for the Preliminary Education, Training, and Certification of Teachers for Various Grades of Schools, 1931. S.R. & O., 1931, No. 180; S. 20. Price 5*d.*; post free, 6*d.*

Leaving Certificate Examination Papers, including Day School Certificate (Higher) General Paper, 1937. Price 2*s.* 6*d.*; post free, 2*s.* 8*d.*

Circular 30, relating to the Leaving Certificate Examination of 1938. (September, 1937.) Price 4*d.*; post free, 5*d.*

Circular 62 (Leaving Certificate: Regulations for award of). (September, 1932.) Price 1*d.*; post free, 1½*d.*

Circular 86 (Day School Certificate (Higher); Modification of courses). (June, 1932.) Price 1*d.*; post free, 1½*d.*

Circular 111 (The Leaving Certificate). (December, 1937.) Price 4*d.*; post free, 5*d.*

Circular 94 (Day School Certificate (Higher): Conditions of issue.) (December, 1934.) Price 1*d.*; post free, 1½*d.*

Circular 95 (Award of Day School Certificate (Higher) to Leaving Certificate failures). (December, 1935.) Price 1*d.*; post free, 1½*d.*

Circular 63 (Conditions of the award of Day School Certificates (Lower)). (January, 1924.) Price 1*d.*; post free, 1½*d.* (*See also* Circulars 73 and 88.)

Circular 73 (Day School Certificate (Lower); Amending conditions of award of). (January, 1927.) Price 1*d.*; post free, 1½*d.*

Circular 88 (Day School Certificate (Lower); alteration of procedure for issuing certificate). (December, 1932.) Price 1*d.*; post free, 1½*d.*

Circular 113 (Day School Certificate (Higher): Junior Leaving Certificate). (January, 1938.) Price 1*d.*; post free, 1½*d.*

Superannuation Scheme for Teachers (Scotland), 1926. S.R. & O., 1926, No. 363, S. 13, as amended by S.R. & O., 1928, No. 1044, S. 55, S.R. & O., 1929, No. 1179, S. 76, S.R. & O., 1932, No. 1073, S. 54, S.R. & O., 1933, No. 1169, S. 67, S.R. & O., 1936, No. 715, S. 23, and S.R. & O., 1937, No. 1157, S. 23. Price 4*d.*; post free, 5*d.*

Teachers' Superannuation Rules (Scotland), 1926. S.R. & O., 1926, No. 356, S. 9. Price 3*d.*; post free, 3½*d.*

Teachers' Superannuation Rules (Scotland), 1926—Amendment of 1929. S.R. & O., 1929, No. 997, S. 69. Price 1*d.*; post free, 1½*d.*

Education (Scotland) Teachers' Superannuation Grant Regulations, 1923. S.R. & O., 1928, No. 951, S. 49. Price 1*d.*; post free, 1½*d.*

Conditions as to Minimum National Scales of Salaries for Teachers in Scotland, 1935. S.R. & O., 1935, No. 568, S. 25. Price 2*d.*; post free, 2½*d.*

Education Authorities (Scotland) Grant Regulations, 1937. S.R. & O., 1937, No. 758, S. 41. Price 2*d.*; post free, 2½*d.*

Central Institutions (Scotland) Grant Regulations, 1923. S.R. & O., 1923, No. 927, S. 57. Price 1*d.*; post free, 1½*d.*

Education (Scotland) Miscellaneous Grants Regulations, 1936. S.R. & O., 1936, No. 1289, S. 44. Price 2*d.*; post free, 2½*d.*

Education (Scotland) Agricultural Colleges Additional Grant Regulations, 1938. S.R. & O., 1938, No. 472, S. 23. Price 1*d.*; post free, 1½*d.*

List of Approved Schools, 1936, (*revised issue*). Price 2*d.*; post free, 2½*d.*

Children and Young Persons (Scotland) Care and Training Regulations, 1933. S.R. & O., 1933, No. 1006, S. 55. Price 4*d.*; post free, 5*d.*

Children and Young Persons (Scotland) Act, 1937. Table of comparison showing how the enactments consolidated are dealt with by the Act (issued jointly with Scottish Office). Price 2*d.*; post free, 2½*d.*

Circular 110 (Children and Young Persons (Scotland) Act, 1937. Employment of Children—Byelaws). (December, 1937.) Price 2*d.*; post free, 2½*d.*

Circular 79 (Draws attention of Education Authorities to recommendations of Committees on Sexual Offences and Young Offenders). (January, 1929.) Price 1*d.*; post free, 1½*d.*

Circular 80 (Draws attention of Managers of Certified Schools to recommendations of Committees on Sexual Offences and Young Offenders). (January, 1929.) Price 1*d.*; post free, 1½*d.*

Circular 83 (Advisory Committees for Juvenile Employment). (October, 1930.) Price 1*d.*; post free, 1½*d.*

M.4. (1937).—Educational Appointments Overseas. Price 2*d.*; post free, 2½*d.*

M.123. Air Raid Precautions in Schools. Price 1*d.*; post free, 1½*d.*

S.O. Code No. 30-4070-0-38

LOWER GEOG.
(MAPS).

LEAVING CERTIFICATE EXAMINATION, 1938.

SCIENCE.
LOWER GRADE—(GEOGRAPHY).

MAPS.

FILL THIS IN FIRST.

Name of School.....

Name of Pupil.....

TO BE PINNED INSIDE THE CANDIDATE'S BOOK OF ANSWERS AND THUS SENT TO THE DEPARTMENT.

[OVER.

1375/38.

Ordnance Survey 1938.

English Miles

0 10 20 30 40 50 60

Scale 1:2,500,000

Projection: Conical.

Kilometres

0 20 40 60

Diagram showing pressure, in millibars, at various weather stations.

Does this map depict a depression or an anticyclone?

Answer:-.....

LEAVING CERTIFICATE EXAMINATION, 1938.

SCIENCE
HIGHER GRADE—(GEOGRAPHY)

MAP

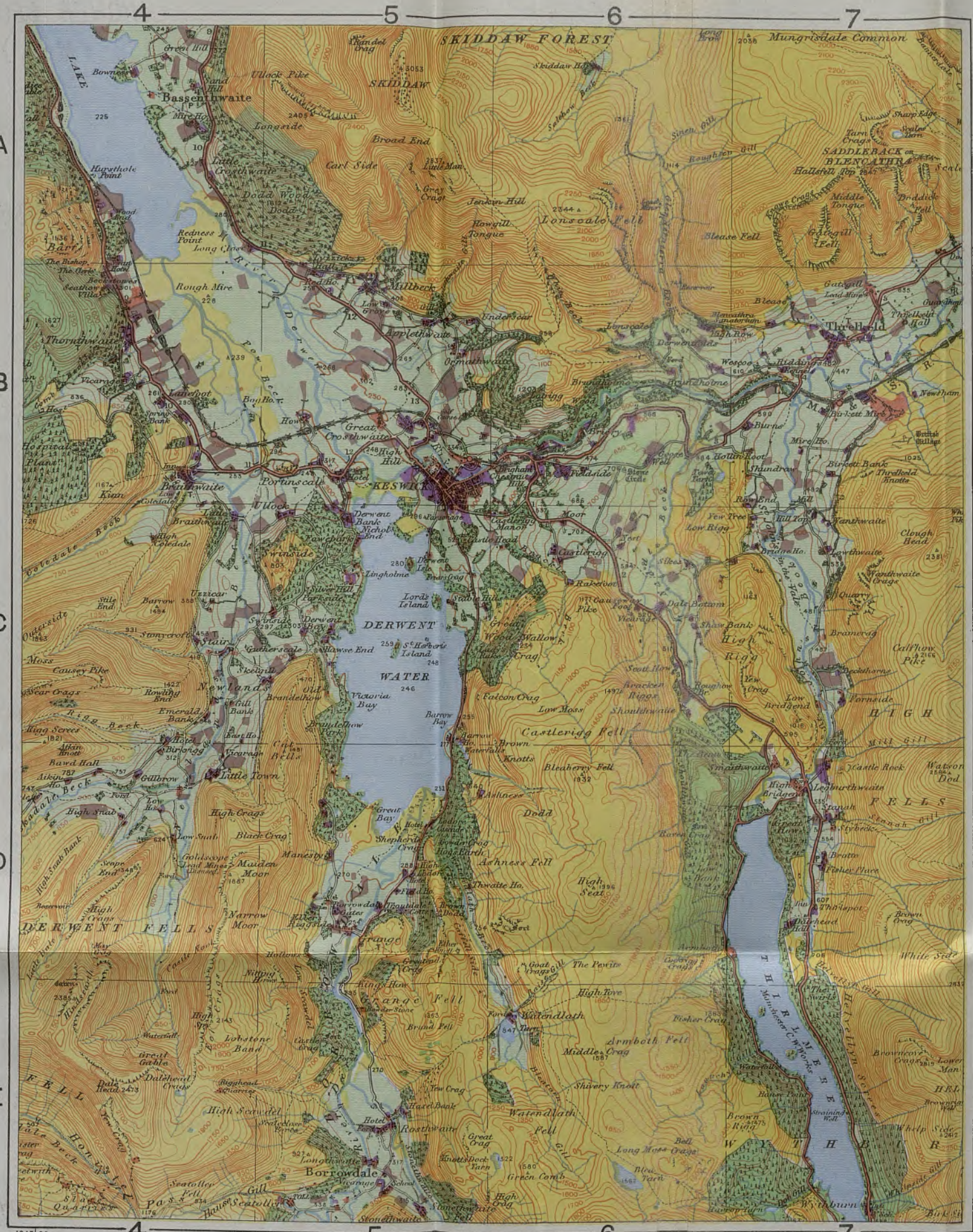
FILL THIS IN FIRST

Name of School _____

Name of Pupil _____

TO BE PINNED INSIDE THE CANDIDATE'S BOOK OF ANSWERS AND THUS SENT TO THE DEPARTMENT.

[OVER



1645/38.

Scale of One Inch to One Statute Mile = 63360

8 7 6 5 4 3 2 1 0 1 2 3 4 5 Miles

1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 Yards

FOREST AND WOODLAND

Deciduous - - -

Coniferous - - -

Mixed - - - -

New plantations - -

NOTE.—Woodland cut down and not replanted is shown by the black symbols of woodlands in the colour of the present utilisation, generally yellow, (heathland)

ARABLE LAND

Including fallow, rotation grass and market gardens - -

MEADOWLAND AND PERMANENT GRASS

Grassland in parks - -

NOTE.—Land available for grazing such as sports grounds and some golf courses, has been included here

The distinction between low-lying meadows and ordinary pasture can be made by reference to the contours

HEATH AND MOORLAND

Heath, Moorland, Commons and rough pasture - -

Rough marsh pasture - -

NOTE.—Areas formerly improved but which have been allowed to revert to rough pasture or heathland are included in these categories

GARDENS, Etc.

Houses with gardens sufficiently large to be productive of fruit, vegetables, flowers, etc. - - - -

New housing areas, nurseries and allotments - -

LAND AGRICULTURALLY UNPRODUCTIVE

Land so closely covered with houses and other buildings or industrial works as to be agriculturally unproductive

Yards, cemeteries, pits, quarries, tip heaps, new industrial works, etc. - -

Main roads shown in red

Inland water shown in blue