



HARROW SCHOOL

ENGLISH SCHOLARSHIP EXAM 2026

1½ hours

Instructions

- This paper is in two sections worth equal marks; you are advised to divide your time evenly between the two.
- In both responses, you will be marked for the quality of your writing (spelling, grammar and punctuation).
- Please begin your response to Section B on a new piece of paper.

SECTION A: WRITING

You attend a boarding school where the Headmaster is considering changing the meal offerings to a vegan diet.

Begin by reading the text **‘Why Veganism?’** on the next page of this booklet.

Then, write a **speech** for your school assembly in which you show either your support for or disapproval of the Headmaster’s plan.

In your speech you should:

- Give your own views, based on the reading, about healthy eating and veganism.
- Use your own words (you don’t need to use quotations).
- Aim to use engaging and persuasive writing to make your speech as interesting as possible.

Marks will be awarded for clarity and accuracy of writing, imaginative and thoughtful use of English, originality of thought and evidence of an ability to think critically and reflectively.

[25 marks]

SECTION A TEXT

Why Veganism?

For the animals

Preventing the exploitation of animals is not the only reason for becoming vegan, but for many it remains the key factor in their decision to go vegan and stay vegan. Having emotional attachments with animals may form part of that reason, while many believe that all sentient creatures have a right to life and freedom. Specifics aside, avoiding animal products is one of the most obvious ways you can take a stand against animal cruelty and animal exploitation everywhere. A more detailed overview on why being vegan demonstrates true compassion for animals can be found [here](#).

For your health

Well-planned vegan diets follow healthy eating guidelines, and contain all the nutrients that our bodies need. Both the British Dietetic Association and the American Academy of Nutrition and Dietetics recognise that they are suitable for every age and stage of life. Some research has linked vegan diets with lower blood pressure and cholesterol, and lower rates of heart disease, type 2 diabetes and some types of cancer.

Going vegan is a great opportunity to learn more about nutrition and cooking, and improve your diet. Getting your nutrients from plant foods allows more room in your diet for health-promoting options like whole grains, fruit, nuts, seeds and vegetables, which are packed full of beneficial fibre, vitamins and minerals.

For the environment

From recycling our household rubbish to cycling to work, we're all aware of ways to live a greener life. One of the most effective things an individual can do to lower their carbon footprint is to avoid all animal products. This goes way beyond the problem of cow flatulence! The production of meat and other animal products places a heavy burden on the environment – from crops and water required to feed the animals, to the transport and other processes involved from farm to fork. The vast amount of grain feed required for meat production is a significant contributor to deforestation, habitat loss and species extinction. In Brazil alone, the equivalent of 5.6 million acres of land is used to grow soya beans for animals in Europe. This land contributes to developing world malnutrition by driving impoverished populations to grow cash crops for animal feed, rather than food for themselves. On the other hand, considerably smaller quantities of crops and water are required to sustain a vegan diet, making the switch to veganism one of the easiest, most enjoyable and most effective ways to reduce our impact on the environment. For more on how veganism is the way forward for the environment, see our [environment section](#).

For people

Just as veganism is the sustainable option when it comes to looking after our planet, plant-based living is also a more sustainable way of feeding the human family. A plant-based diet requires only one third of the land needed to support a meat and dairy diet. With rising global food and water insecurity due to a myriad of environmental and socio-economic problems, there's never been a better time to adopt a more sustainable way of living. Avoiding animal products is not just one of the simplest ways an individual can reduce their strain on food as well as other resources, it's the simplest way to take a stand against inefficient food systems which disproportionately affect the poorest people all over the world. Read more [here](#) on how vegan diets can help people.

SECTION B: READING

Read the following excerpt from *The Pearl* by John Steinbeck and answer the question that follows.

In this extract from the beginning of the novel, Kino, a poor pearl diver, is with his wife Juana and their baby Coyotito in their village home in Mexico.

The sun was warming the brush house, breaking through its crevices in long streaks. And one of the streaks fell on the hanging bed-box where baby Coyotito lay, and on the ropes that held it. It was a tiny movement that drew their eyes to the hanging box. Kino and Juana froze in their positions. Down the rope that hung the baby's box from the roof support, a scorpion moved slowly. His stinging tail was straight out behind him, but he could whip it up in a flash of time.

Kino's breath whistled in his nostrils and he opened his mouth to stop it. And then the startled look was gone from him and the rigidity from his body. In his mind a new song had come, the Song of Evil, the music of the enemy, of any foe of the family, a savage, secret, dangerous melody, and underneath, the Song of the Family cried plaintively. The scorpion moved delicately down the rope toward the box. Kino was in motion. His body glided quietly across the room, noiselessly and smoothly. His hands were in front of him, palms down, and his eyes were on the scorpion. It sensed danger when Kino was almost within reach of it. It stopped, and its tail rose up over its back in little jerks and the curved thorn on the tail's end glistened. Kino stood perfectly still. He could not move until the scorpion moved, and it felt for the source of the death that was coming to it. Kino's hand went forward very slowly, very smoothly. The thorned tail jerked upright.

And at that moment, the laughing Coyotito shook the rope and the scorpion fell.

Kino's hand leaped to catch it, but it fell past his fingers, fell on the baby's shoulder, landed and struck. Then, snarling, Kino had it, had it in his fingers, rubbing it to a paste in his hands. He threw it down and beat it into the earth floor with his fist, and Coyotito screamed with pain in his box. But Kino beat and stamped the enemy until it was only a fragment and a moist place in the dirt. His teeth were bared and fury flared in his eyes and the Song of the Enemy roared in his ears.

But Juana had the baby in her arms now. She found the puncture with redness starting from it already. She put her lips down over the puncture and sucked hard and spat and sucked again while Coyotito screamed.

Kino hovered; he was helpless, he was in the way.

The screams of the baby brought the neighbours. "Scorpion. The baby has been stung."

How does Steinbeck make this moment tense and dramatic?

You may wish to consider the rising tension, the presentation of the scorpion, Kino and Juana's reactions etc.

Be sure to use quotations from the passage in your response.

[25 marks]



French Scholarship Examination

2026 60 minutes

- *Section 1 : Text and reading comprehension*
- *Section 2 : Text and retranslation*
- *Section 3 : Translation into French*
- *Section 4 : 130-200 word response in French*

Write your answers on the question paper using blue or black ink. Ensure that you write your name on the paper.

Name _____

1. Read the passage from *David* by Jean-Marie-Gustave Le Clézio. Find the English expressions; write them in French, exactly as they are in the text. You will be penalised for incorrect spelling and missed accents.

«Tu veux du pop-corn?» Quand David entend la voix de l'homme, il a parlé doucement, mais avec quelque chose qui a tremblé un peu, comme s'il avait peur, lui aussi. David bondit de la borne et il se met à courir aussi vite qu'il peut vers l'entrée du parking, là où il y a encore des voitures arrêtées. Dès qu'il a passé une voiture, il s'arrête, il s'aplatit sur le sol et il rampe sous les voitures, passant de l'une à l'autre, puis il s'immobilise à nouveau, et il regarde autour de lui. L'homme est là, il a couru derrière lui, mais il est trop gros pour se baisser, il marche à grands pas le long des voitures. David voit ses jambes passer, s'éloigner. Il attend encore un peu, et il rampe en sens inverse. Quand il sort de dessous un camion arrêté, il voit la silhouette de l'homme, très loin qui s'éloigne en regardant autour de lui.

Maintenant, David a moins peur, mais il n'ose plus marcher dans la nuit. La plate-forme du camion est recouverte d'une bâche, et David défait un côté, et il se glisse sous la bâche. La tôle est froide, couverte de poussière de ciment. Près de l'habitacle, David trouve de vieilles toiles, et il fait son lit avec elles. La faim, la peur, et toute cette journée passée dehors à marcher l'ont fatigué. Il se couche sur les toiles, et il s'endort en écoutant le bruit des moteurs qui passent sur la route, le long du rio sec. Il pense peut-être encore une fois à son frère Édouard, seul comme lui dans la nuit, ce soir.

- Example : « Do you want some popcorn ? » **«Tu veux du pop-corn?»**

1. He no longer dares to walk _____
2. Around him _____
3. In the opposite direction _____
4. (Whilst) listening to the noise _____
5. On the ground _____
6. He is too fat _____
7. He spoke softly _____
8. Covered in dust _____
9. He starts running _____
10. A stationary lorry _____

(10 marks)

2. Read the translated sections of text. Adapt the original language to complete the translation. Check verb forms, singular/plural nouns and adjectives etc.

- Example

David entend la voix : David hears the voice

→ We hear a voice :

Nous entendons une voix

1. *Il avait peur, lui aussi* : He too was afraid,

→ I too was afraid :

2. *Il a couru derrière lui* : He ran behind him

→ They did not run behind us :

3. *David défait un côté* : David undoes one side

→ I will undo the other side :

4. *David trouve de vieilles toiles* : David finds some old canvas sheets

→ He does not find any new canvas sheets :

5. *Il se couche sur les toiles* : He sleeps on the canvas sheets

→ He never sleeps under the canvas sheets :

(15 marks)

3. Translate the sentences into French using the verb(s) provided:

a) I get dressed quickly. (*s'habiller*)

b) We are finishing the homework. (*finir*)

c) She will choose the blue coat. (*choisir*)

d) You (use *vous*) would like to visit the museum. (*aimer / visiter*)

e) Thomas and Julie waited for the bus. (*attendre*)

f) They (use *elles*) are going to arrive tomorrow. (*aller + infinitif*)

g) I had lost my keys. (*perdre*)

h) He washed his hands. (*se laver les mains*)

i) You (use *tu*) drink nothing. (*boire*)

j) He was writing a letter. (*écrire*)

(30 marks)

4. You are writing an article in French for your school website about different aspects of school life and routine. It can be a true or imaginary account.

You will describe 1) the qualities of your favourite teacher; 2) how you spent the last school holiday; 3) an school activity that you would like to try; 4) what you are going to do after school this evening.

Answer in the spaces provided. Aim to write 35-50 words per question. Do not exceed 200 words in total (focus on accuracy rather than quantity) – 40 marks.

1) Décris ton professeur préféré. Quelles sont ses qualités principales ?

2) Qu'as-tu fait pendant les dernières vacances scolaires ?

3) Décris une activité (scolaire) que tu aimerais essayer un jour. Pourquoi voudrais-tu la faire ?

4) Que vas-tu faire ce soir après l'école ?



HARROW SCHOOL

Geography Scholarship Examination 2026

60 minutes

This exam consists of **two** sections.

Section 1 consists of four- and six-mark questions.

Section 2 consists of a choice of four, 20-mark essays. Select and answer **one question only**.

You are advised to spend 30 minutes on Section 1 and 30 minutes on Section 2.

Answer all questions in the space provided.

Clearly name any extra paper used.

Use blue or black ink for written text.

You may use a pencil for diagrams.

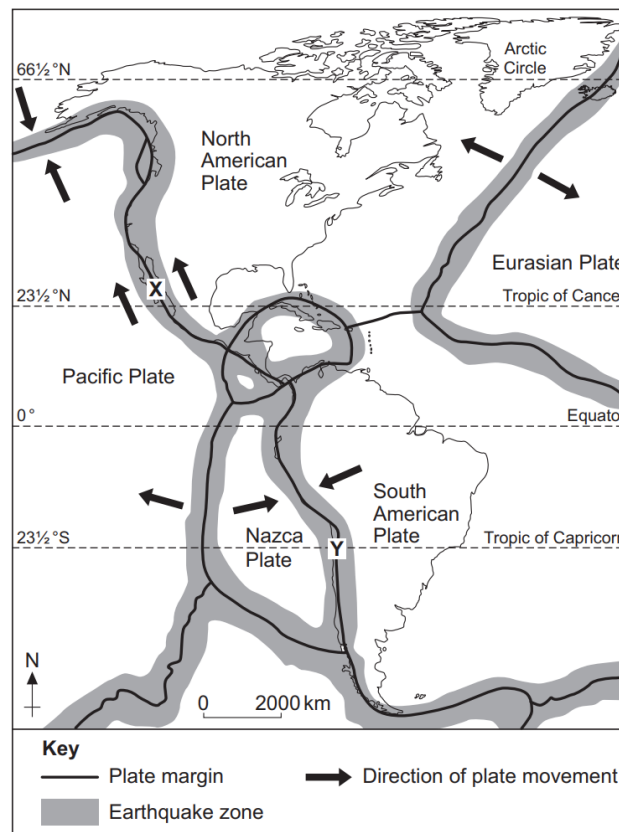
SECTION 1

Answer ALL of QUESTION 1

[Total: 20 marks]

Study **Figure 1**, a map showing the tectonic plates in and around North America and South America.

Figure 1



1. Suggest why earthquakes and volcanic eruptions happen close to the plate margin at Y. Use **Figure 1** and your own understanding.

[4 marks]

This image shows a full page of white paper with horizontal dashed lines, typical of primary school handwriting practice paper. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Study **Figure 2** and **Figure 3**, photographs showing features of a coastal landscape and showing features of a floodplain.

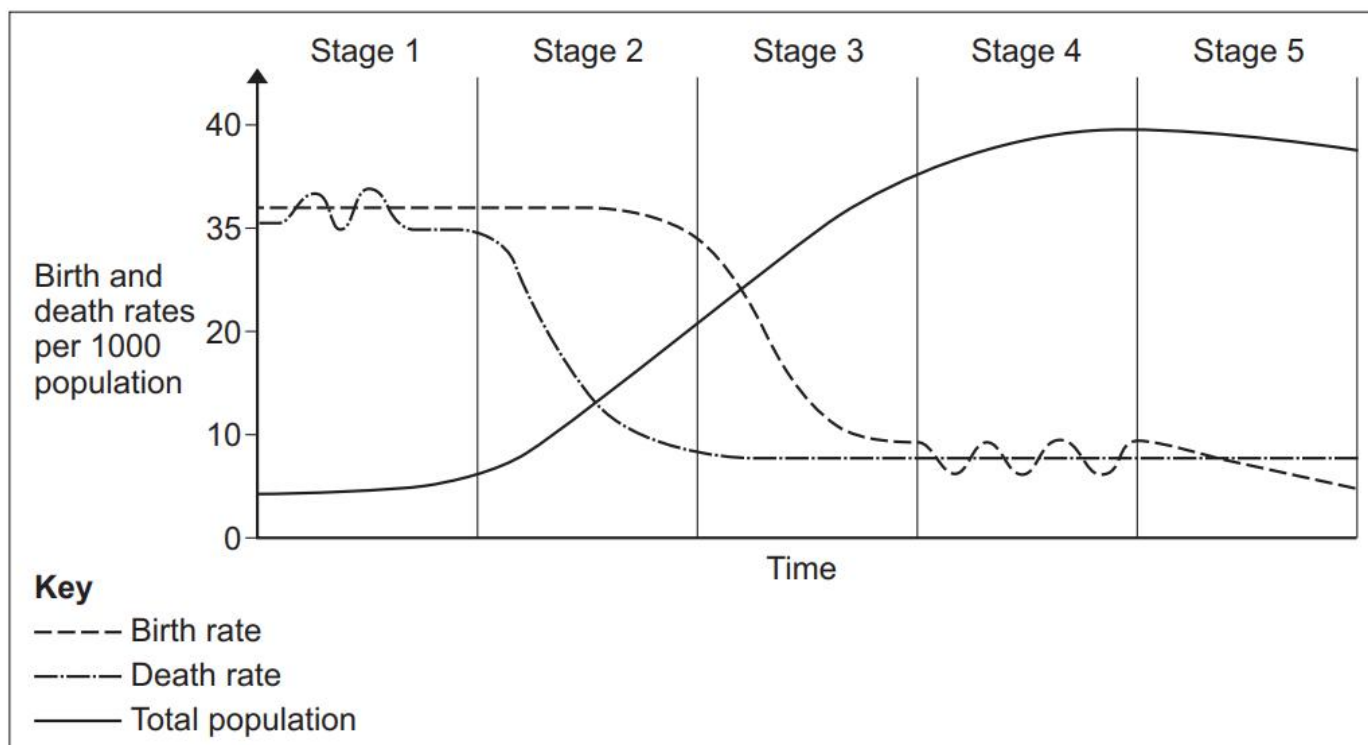
Figure 2 a photograph showing features of a coastal landscape.



Figure 3 a photograph showing features of a floodplain.



Study **Figure 4**, the Demographic Transition Model.



3. Using **Figure 4**, suggest how population change in Stage 3 may have economic costs and benefits.

[4 marks]

[illegible]

Study **Figures 5, 6 and 7**, which present information about an Advanced Manufacturing Research Centre in an area to the east of Sheffield, a city in the UK.

Figure 5, a 1:50 000 Ordnance Survey map of an area to the east of Sheffield, a city in the UK.

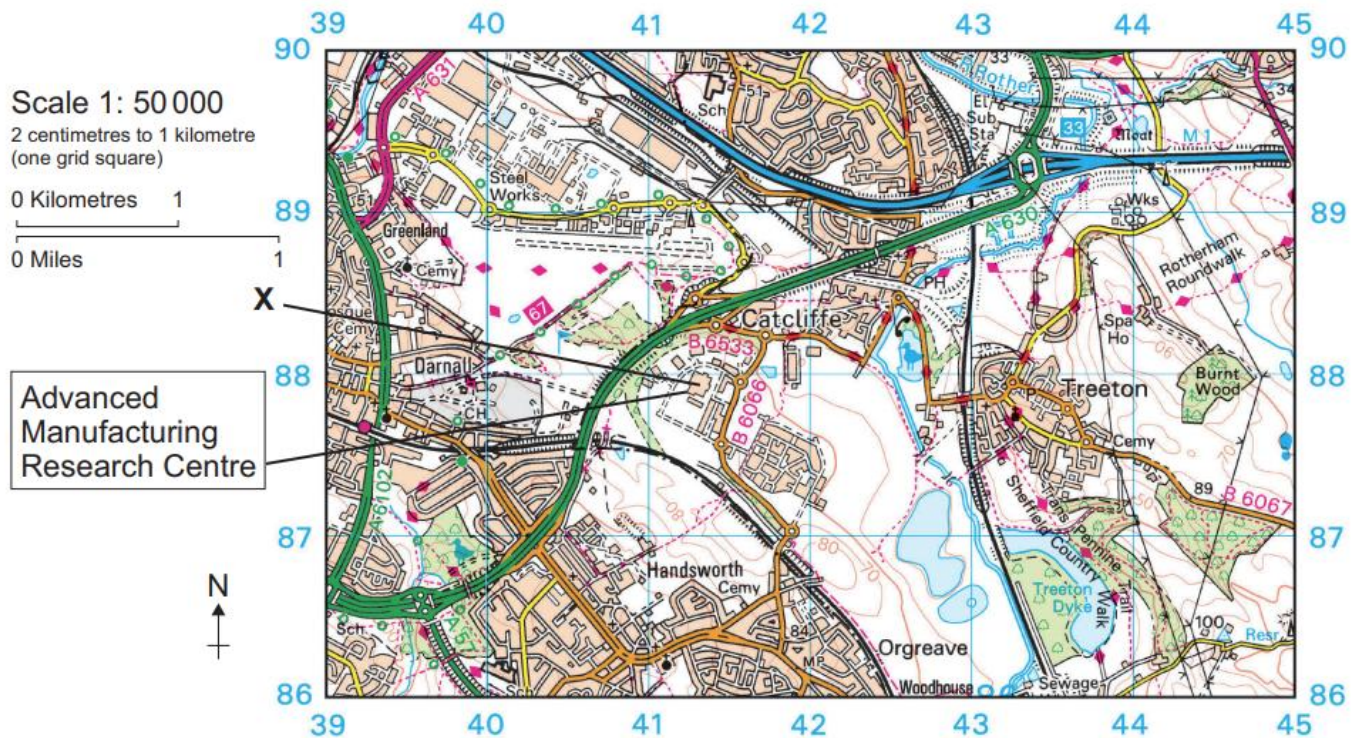


Figure 6, a photograph of part of the area shown in **Figure 5**.



Figure 7, some information about Sheffield University's Advanced Manufacturing Research Centre.

- Built on land reclaimed from coal mining
- A brownfield site
- Combines research and science firms
- Focuses on future technology
- Europe's largest advanced manufacturing park

[illegible]

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END OF SECTION 1

SECTION 2

[Spend 30 minutes on this section]

Answer any **one** of the following essay questions and in each case **refer to specific examples, places and processes**. Try and write a balanced answer which shows **both sides of an issue**.

Credit will be given for the use of named and located examples, and the use of well-labelled sketch maps and diagrams, where appropriate.

EITHER

1. Assess the relative importance of latitude in influencing the climate of the British Isles. **[20 marks]**

OR

2. Suggest how energy supplies have been made more sustainable. Use an example of a local renewable energy scheme in the UK. **[20 marks]**

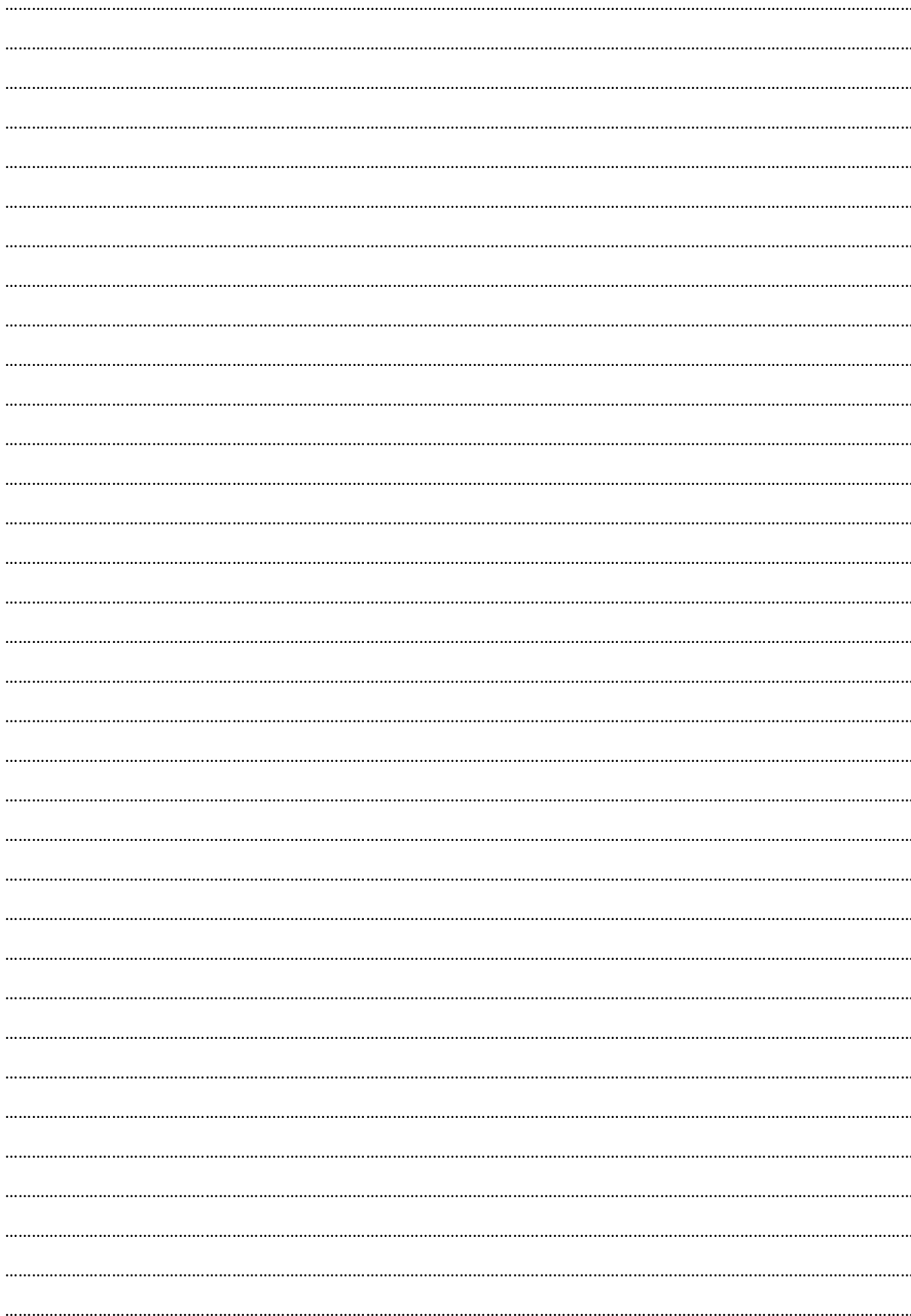
OR

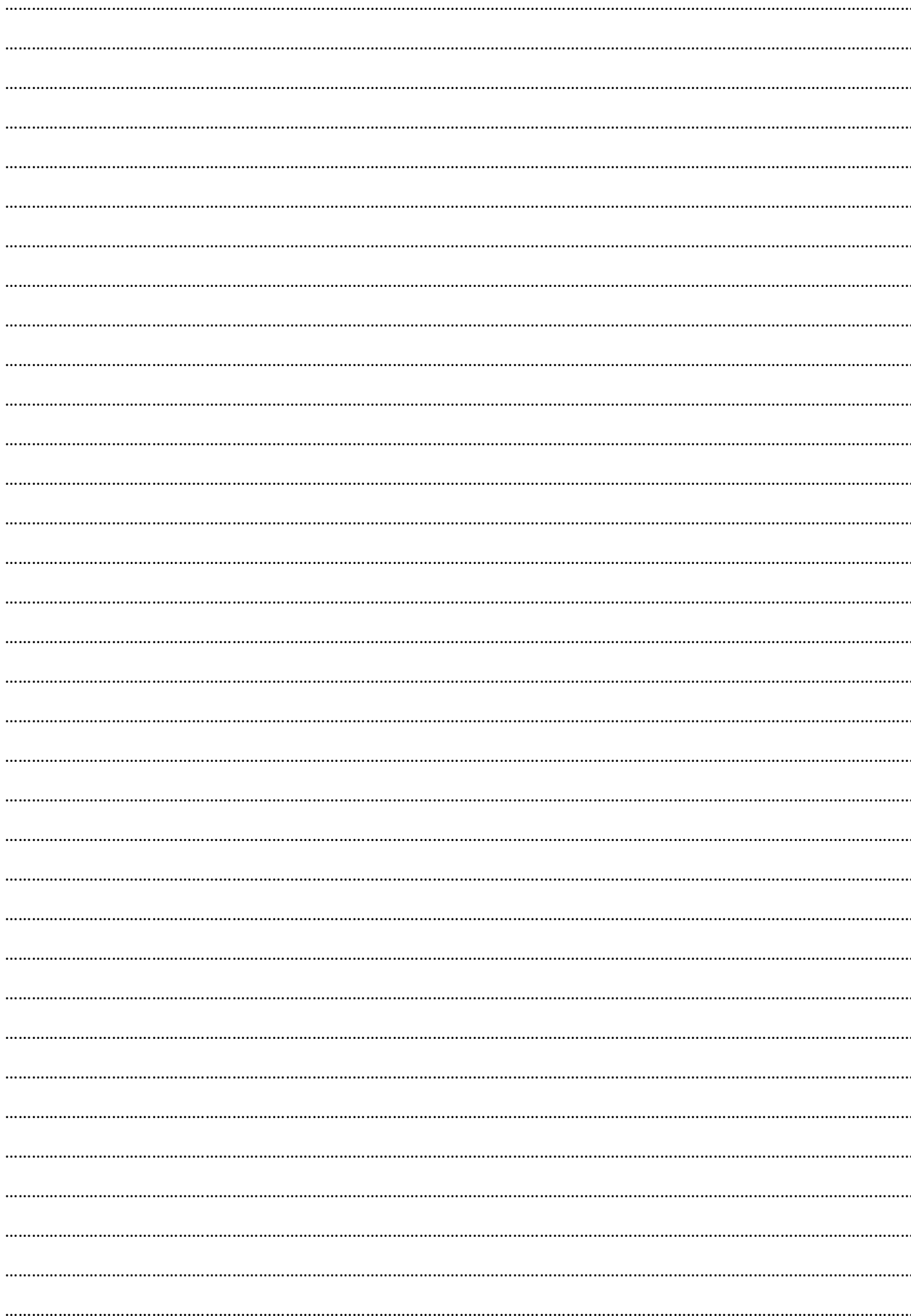
3. 'Long-term responses to a tectonic hazard are more important than immediate responses.' Do you agree? **[20 marks]**

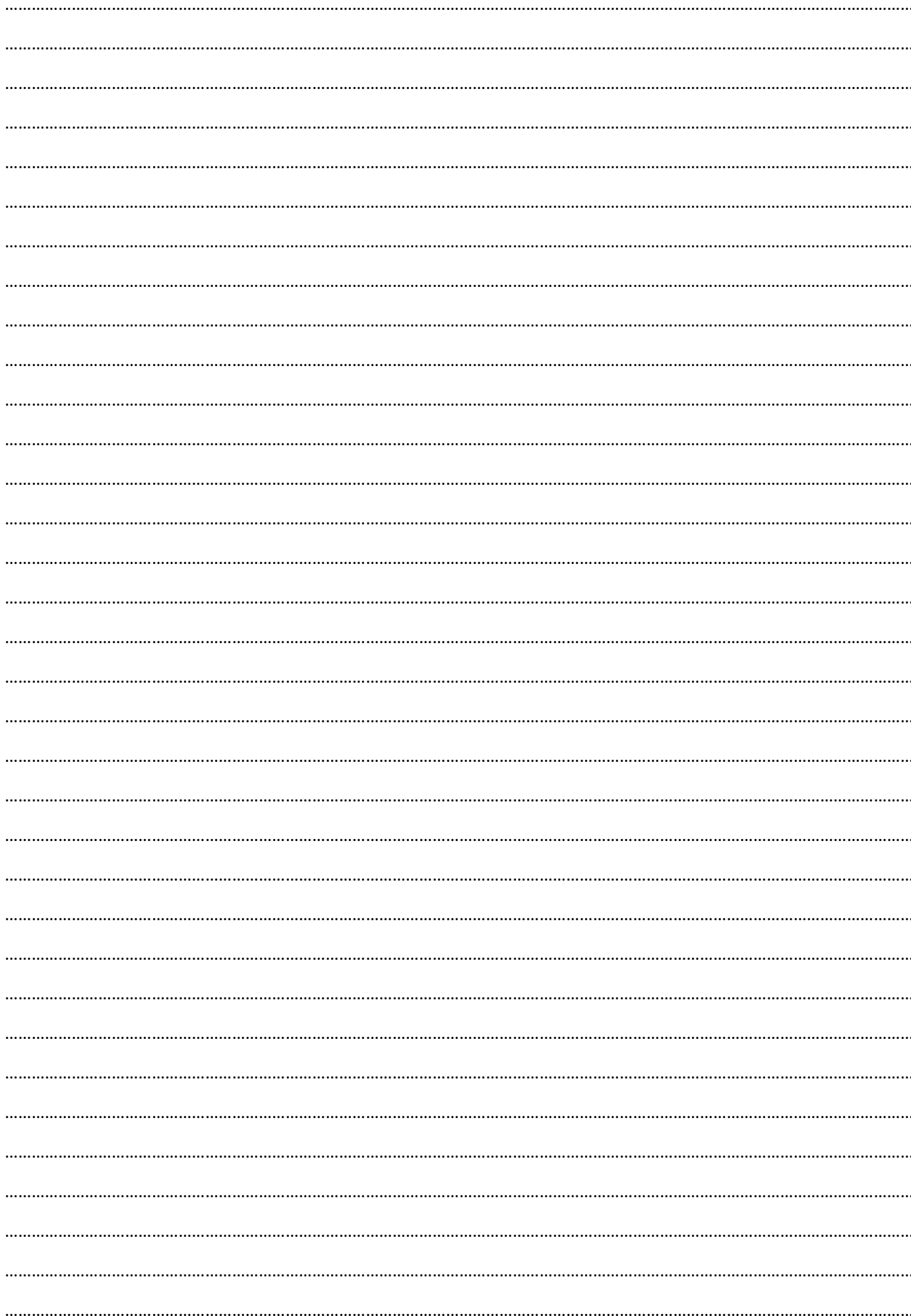
OR

4. To what extent has urban change created environmental challenges that are overwhelming in a city you have studied? **[20 marks]**

Space to plan your answer:







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[Total: 20 marks]

[Exam Total: 40 marks]

END OF EXAMINATION



HARROW SCHOOL

ENTRANCE SCHOLARSHIPS EXAMINATION 2026

CLASSICAL GREEK 1 hour

GENERAL INSTRUCTIONS

You must attempt all questions.

You should make an intelligent guess at words you do not know, using your knowledge of English vocabulary.

Try to base any guesses on elements in the sentence that you definitely DO know and make sure that they make sense in context.

Use blue or black ink.

SECTION A: Reading and Grammar (50 marks)

1 Identify the following Greek proper names by transliterating the Greek.

- (a) Ἑρμῆς
- (b) Ἀρτεμῖς
- (c) Ἥρα
- (d) Ἀσκληπιός
- (e) Ἑστία

[5]

2 Transliterate the following English into Greek (i.e. write them in Greek letters). Long vowels (eta, omega etc.) are indicated with a mark (e.g. 'ê' or 'ô'). Remember to add breathings where appropriate.

- (a) Hêphaistos
- (b) Mnêmosynê
- (c) Kalypsô
- (d) Hêraklês
- (e) Phoibos

[5]

3 Change the following nouns from plural to singular, keeping the same case. Write out the Greek singular form and give the basic meaning of each word.

Example: τοὺς δούλους = τὸν δούλον (slave)

- (a) οἱ ποιηταί
- (b) τὰ ζῶα
- (c) τῶν κινδύνων
- (d) τοῖς δεσπότηαις
- (e) αἱ ἀγοραί

[10]

4 Change the following nouns from singular to plural, keeping the same case. Write out the Greek plural form and give the meaning of each word.

- (a) τὸ ἄθλον
- (b) ὁ νεανίας
- (c) τῆς ἐπιστολῆς

[6]

5 Change the following verbs from single to plural, or plural to single, keeping the same person and tense. Then translate your answer.

(a) παιδεύει

(b) ἐπαύομεν

(c) φυλάξουσιν

(d) ἐκώλυον

(e) ἔβλαψας

[10]

6 The following English words are derived from Greek words. What do they mean in English?

Write down any Greek word you might know related to the English word.

(a) logic

(b) philosophy

(c) biology

(d) thalassophobia

(e) demography

(f) hydraulic

[6]

7 Write out any TWO of the following:

(a) The full future indicative active of λέγω.

(b) The noun τὸ ἔργον in all cases, singular and plural.

(c) The feminine definite article in all cases, singular and plural.

(d) Decline the pronoun ἐγώ in full.

[8]

SECTION B: Sentences and Composition (35 marks)

1 Translate into English:

(a) ὁ σοφὸς ποιητὴς λόγον νῦν λέγει.

[5]

(b) οἱ ναῦται τὴν θάλασσαν εὐθὺς ἐφύλασσον.

[4]

(c) ἄρα ὁ κακὸς κριτὴς πόλιν ἔβλαψεν;

[4]

(d) οἱ ξένοι οὐκέτι μένουσι.

[3]

(e) πῶς τὸν βασιλέα μόνος ἐδίωξεν;

[4]

2 Translate into Greek:

- (a) The slave sends a letter to the city. [5]
(b) Will the messenger save a good child? [5]
(c) The soldiers punished the enemy for one day. [5]

SECTION C: Translation (30 marks)

Translate the passage into good English. Write your translation on alternate lines. Some vocabulary is given at the foot of the page. Try to identify the proper names mentioned in the passage.

During times of war, the Athenians often looked for guidance in the favour of the gods. Athena, the patron goddess of Athens, represented wisdom and strategy, and the protection of the city. This passage describes a moment when the people are urged to rely not on wealth or force, but on wisdom and reverence for the gods.

ἐν χαλεπῷ πολέμῳ οἱ Ἀθηναῖοι ἐν μεγάλῳ κινδύνῳ ἦσαν καὶ πολλὰς ἡμέρας ἐν τῇ βουλῇ ἔλεγον. ἔπειτα δὲ στρατηγὸς τὴν τῆς Ἀθηνᾶς σοφίαν ἡγγειλεν, τῆς θεᾶς τῆς πόλεως, καὶ αὕτη μᾶλλον ἢ χρυσῷ καὶ ὅπλοις ἐπίστευεν. ἐπεὶ δὲ τοὺς πολίτας εἰς τὴν ἀγορὰν ἡγάγε καὶ λόγους καλοὺς ἔλεγεν. ἔλεγεν γὰρ ὅτι ἄνδρες κακοὶ τὰ ἀγαθὰ ἔργα βλάπτουσι καὶ μόνη ἡ σοφία σώσει τοὺς πολίτας. οἱ Ἀθηναῖοι οὖν πολὺν χρόνον ἤκουον καὶ τοῖς τοῦ στρατηγοῦ λόγοις ἐπίστευον, ὅτι ἡ Ἀθηνᾶ τὴν πόλιν αὐτῶν ἀεὶ οἶός τ' ἦν φυλάσσειν. οἱ οὖν πολῖται δῶρα εἰς τὸ ἱερόν ἔπεμψαν καὶ τὴν γῆν εὖ ἐφύλασσον. ὀλίγον μὲν χρόνον εἰρήνην ἔμενεν, καὶ οἱ πολῖται σωτηρίαν ἠλπίζον. ἔπειτα δὲ νέοι πολέμιοι διὰ θαλάσσης ἦλθον, καὶ οἱ Ἀθηναῖοι εὗρον ὅτι πόλις σοφὴ ἀεὶ τοὺς θεοὺς θεραπεύει.

Vocabulary

βουλή	council-house
ἔπειτα	then, next
μᾶλλον ἢ	rather than
ἔλεγεν ὅτι	"he was saying that..."
τὸ ἱερόν	temple, sanctuary
σωτηρία	safety, deliverance

END



HARROW SCHOOL

ENTRANCE SCHOLARSHIPS EXAMINATION 2026

LATIN

1 ½ hours

GENERAL INSTRUCTIONS

You must attempt all questions in Section A: Translation, Section B: Comprehension, and Section C: Grammar and Translation.

You should make an intelligent guess at words you do not know, using your knowledge of English vocabulary and the English introduction to each passage.

Try to base any guesses on elements in the sentence that you definitely DO know and make sure that they make sense in context.

Use blue or black ink.

[85 marks]

Section A: Translation

Translate the passage into good English. Use alternate lines.

Gaius Fabricius Luscinus was a Roman statesman and general of the early third century BC. He acted during Rome's wars against the invading king Pyrrhus of Epirus. This story takes place in Italy during a period of danger. It presents integrity and public duty under pressure.

Luscinus ipse imperator multos dies procul a Roma manebat, cum bellum magnum in Italia esset. eo tempore hostes prope fines Romanorum aderant et timor civium crescebat. his rebus cognitis, Fabricius ad urbem rediit et ad populum venit. clara voce loquebatur et omnes silentium faciebant, ut verba eius audirent. Luscinus dixit se nolle pecuniam aut dona accipere, sed se velle rem publicam servare. "ego", inquit, "possum hostes virtute superare, ut pax certa faceretur." verba eius tanta erant ut animus civium confirmaretur. deinde Fabricius milites convocavit et imperavit: "state in ordine et me sequimini!" eo ipso duce, exercitus procedebat, armis paratis. postridie proelium commissum est et hostes celeriter ab militibus Romanis fugati sunt. paucis post diebus, pace facta, Fabricius ad urbem rediit. ibi multos dies mansit civesque eum laudabant, quod fidem et virtutem ostendit.

Vocabulary

cresco (3)	to increase
confirmo (1)	to strengthen
ordo, ordinis, m. 3 rd	order, rank
committo (3)	to join in
fugo, fugare	to set to flight, to cause to flee

[30 marks]

Section B: Comprehension

Caesar, the famous Roman commander and political leader of the first century BC, held authority over Roman armies during a period of repeated conflict. Roman soldiers were required to maintain order while awaiting further commands. Caesar was responsible for directing the army and preserving control. The passage describes Caesar's leadership, restraint and his management of troops.

Caesar exercitum prope Romam habebat et diu ibi manebat. multis ante diebus hostes superati erant, sed timor adhuc erat. Caesar consilium capiebat et milites saepe ad se vocabat. milites taciti stabant et verba ducis audiebant. Caesar dicebat se posse exercitum servare, si omnes imperia sequerentur. dixit se velle milites ordinem tenere et nolle temere procedere. imperavit eis ut manerent castraque custodirent. eo die dux ipse per castra ambulabat et omnia diligenter spectabat. militibus patientiam hortantibus, mora tolerabatur. multis diebus post, hostes, cum omnis cibus consumptus esset, frustra discesserant. postea Caesar in castris ad exercitum venit et verba clara dixit. hoc consilio capto, exercitus in eodem loco mansit. sed postridie Caesar signa moveri iussit, ut hostes ab illo loco expellerentur. imperator hoc modo se ad milites iterum convertit et imperium confirmavit.

Vocabulary

ordo, ordinis, m. 3rd

temere

patientia, f.

mora, f.

signum, n.

order, rank

rashly

patience

delay

the army standard, the Roman banner

Answer all questions.

1. Where was Caesar holding the army, and for how long? (line 1) **(2 marks)**
2. What had happened to the enemy earlier, but what feeling still remained? (line 2) **(3 marks)**
3. What two actions was Caesar regularly taking at that time? (line 2) **(2 marks)**
4. What did Caesar say he was able to do, and on what condition? (line 3-4) **(3 marks)**
5. What two things did Caesar say he wanted and did not want? (line 4-5) **(4 marks)**
6. What direct order did Caesar give to the soldiers? (line 5) **(2 marks)**
7. What was Caesar doing in the camp on that day? (line 5-6) **(2 marks)**
8. Why was the delay tolerated by the soldiers? (line 6) **(2 marks)**
9. What eventually happened to the enemy after many days? (line 7) **(1 mark)**
10. What did Caesar order on the next day? (line 9) **(2 marks)**
11. What effect did Caesar's actions have on the soldiers' state of mind? Name two things. (line 10-11) **(2 marks)**

[25 marks]

Section C: Grammar and Composition

Caesar exercitum prope Romam **habebat** et diu ibi manebat. multis ante diebus hostes superati erant, sed timor adhuc erat. Caesar consilium capiebat et milites saepe ad **se** vocabat. **milites** taciti stabant et **verba** ducis audiebant. Caesar dicebat se posse exercitum servare, si omnes imperia sequerentur. dixit se velle milites ordinem tenere et nolle temere procedere. imperavit eis ut **manerent** castraque custodirent. eo die dux ipse per castra ambulabat et omnia diligenter spectabat. **militibus** patientiam **monentibus**, mora tolerabatur. multis diebus post, hostes, cum omnis cibus **consumptus esset**, frustra **discesserant**. postea Caesar in **foro** ad exercitum venit et verba clara dixit. hoc consilio capto, exercitus in eodem loco mansit. postridie signa moveri iussit, ut hostes ab illo loco **expellerentur**. imperator hoc modo se ad milites iterum convertit et imperium confirmavit.

Answer the following grammar questions about the passage you have just read.

1. State the tense **habebat** in line 1. (1 mark)
2. State and explain the case **se** in line 2. (2 marks)
3. State and explain the case of **milites** in line 3. (2 marks)
4. State and explain the case **verba** in line 2. (2 mark)
5. **manerent** in line 5 is in the subjunctive. Explain why. (1 mark)
6. Identify the construction in **militibus monentibus** in line 6. (1 mark)
7. Identify the tense and voice of **consumptus esset** in line 7. (2 marks)
8. State the tense of **discesserant** in line 8. (1 mark)
9. State and explain the case of **foro** in line 8. (2 marks)
10. **expellerentur** in line 10 is in the subjunctive. Explain why. (1 mark)

[15 marks]

Translate the following sentences into Latin.

- | | |
|--|-----|
| 1. The soldier fights bravely in order to conquer. | [4] |
| 2. Peace will come after war. | [3] |
| 3. The cruel enemies fled yesterday. | [4] |
| 4. The city had been captured by the general. | [4] |

[15 marks]

Surname:	First name:
Current School:	



HARROW SCHOOL

MATHEMATICS PAPER 1 SCHOLARSHIP EXAMINATION 2026 90 minutes

Instructions to candidates

- Use BLACK ink only.
- Calculators and geometrical instruments may be used.
- Show all your working. Answers with no working may not score full marks.
- Write your answer to each question in the space following the question.

Information for candidates

- The marks available for each question are indicated in square brackets.
- Full marks may be obtained for answers to ALL questions.
- This paper has **17** questions (Section A: 60 marks and Section B: 40 marks).
- The total number of marks available is **100**.

Section A (60 marks)

1.

- (a) Solve without the use of a calculator, showing all working and giving your answer as a fraction in its simplest form.

$$2\frac{3}{8} + 3\frac{5}{6} =$$

..... (2)

- (b) Solve without the use of a calculator, showing all working and giving your answer as a fraction in its simplest form.

$$1\frac{1}{5} \div 2\frac{2}{7} - 3\frac{1}{2} \times \frac{3}{4}$$

=

..... (3)

2. (a) Express as a single fraction

$$\frac{x}{3} - \frac{3y}{2}$$

..... (2)

(b) Express as a single fraction

$$\frac{x-1}{6} - \frac{x+1}{4}$$

..... (2)

(c) Express as a single fraction

$$\frac{2}{y-1} - \frac{3}{y+1}$$

..... (3)

3. (a) Factorise $16p - 18pk$

..... (1)

(b) Factorise fully $5k^2 - 15k^3$

..... (1)

(c) Factorise fully $5p^4k^3 - 25p^2k^4$

..... (2)

4. (a) Solve $\frac{3x}{4} - \frac{2x}{5} = 1$

$x = \dots\dots\dots$ (3)

(b) Solve $y^2 - 3(2y - 1) = 1 - y(3 - y)$

$y = \dots\dots\dots$ (3)

(c) Solve $\frac{1+z}{1-z} = \frac{4}{3}$

$z = \dots\dots\dots$ (3)

(d) Solve for the values of k if

$$3 - (k + 1)^2 = -\frac{1}{16}$$

$k = \dots\dots\dots$ (3)

5. (a) Make x the subject of the following

$$a - 2x = 3$$

$$x = \dots\dots\dots (2)$$

- (b) Make x the subject of the following

$$a = \frac{x}{3} - \frac{b}{2}$$

$$x = \dots\dots\dots (3)$$

- (c) Make x the subject of the following

$$y = \frac{(a-x)b}{2}$$

$$x = \dots\dots\dots (4)$$

- (d) Make x the subject of the following

$$2x + y - 3 = 3y - 2(1 - 3x)$$

$$x = \dots\dots\dots (4)$$

You may use your calculator for question 6.

6. Given that $y = x^2 - ab + c$

(a) Evaluate y , if $x = 2, a = 7, b = -2$ and $c = 4$.

$y = \dots\dots\dots$ (2)

(b) Evaluate a , giving your answer to two significant values, if $y = 12, x = 2.5, b = -3$ and $c = 1.8$

$a = \dots\dots\dots$ (3)

(c) Find the exact values of x , if $y = 3, a = -3, b = -3$ and $c = -\frac{1}{4}$.

$x = \dots\dots\dots$ (4)

You must show clearly each stage of your calculation for question 7.
 Answers obtained directly from the calculator or without working will score no marks.

7. (a) Work out

$$\frac{12 - 4 \times 2}{-6 \div 3 \times (-2)}$$

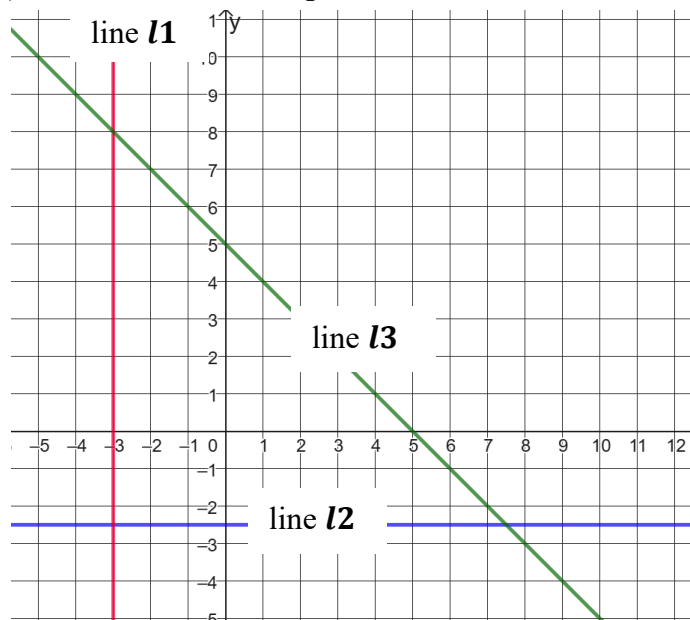
..... (3)

(b) Evaluate

$$3 \div (5 - 2) + (3 \times (-2)^2) - 5$$

..... (3)

8. (a) Write down the equation of these three lines



line *l1* :(1)

line *l2* :(1)

line *l3* : (2)

Section B (40 marks)

9. Twice a number plus 7 equals three times the number minus 2. Find the number.
You must show algebraic working. Solutions by trial and error will gain no mark.

Hint: Let the number = x .

..... (4)

10. PQR is a straight line. Given that $PQ = QS = QR$ and $\angle SPQ$ is 25° .

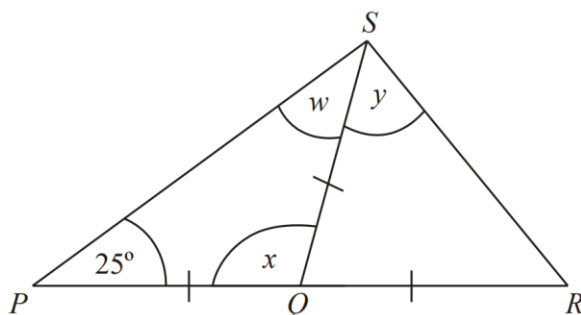


Diagram **NOT** accurately drawn

- (a) Write down the size of angle w .

$w = \dots\dots\dots$ (1)

- (b) Work out the size of angle x .

$x = \dots\dots\dots$ (1)

- (c) Work out the size of angle y .

$y = \dots\dots\dots$ (2)

11. The sum of three consecutive odd numbers is equal to twice the smallest number plus 105. Find the numbers.

You must show algebraic working. Solutions by trial and error will gain no mark.

..... (4)

12. Given that

$$m * n = (m + n)^2 - (m - n)^2$$

- (a) Evaluate $3 * 2$.

..... (1)

- (b) I am thinking of two integers, x and y . If the sum of these integers is 8 and their difference is 2, write down the value of $x * y$.

..... (1)

- (c) Using the information from (b), write down the values of x and y .

$x =$ (1)

$y =$ (1)

13. A class of students completed several assignments. One of the recorded marks was 46, but it should have been 60. The class average increases from 54 to 56 after the correction. How many students are in the class?

No of students = ... (4)

14. Here is a sequence of patterns made from grey counters.



pattern number 1



pattern number 2



pattern number 3

- (a) In the space below draw pattern number 4.

(1)

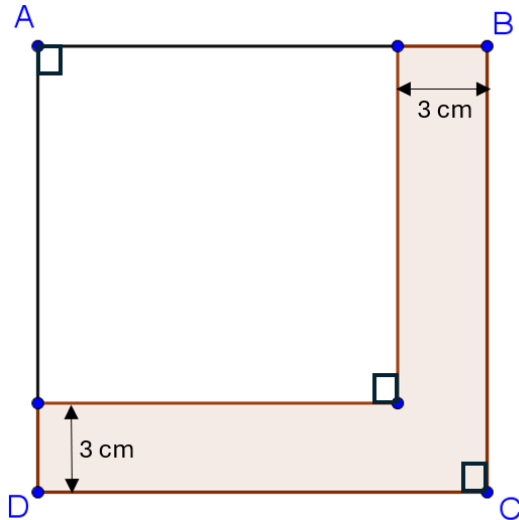
- (b) Work out the total number of counters to make pattern number 10.

..... (2)

- (c) Write down the formula you can use to work out pattern number n .

..... (2)

15. The area of the shaded part of square ABCD is 51 cm^2 . What is the area of square ABCD?

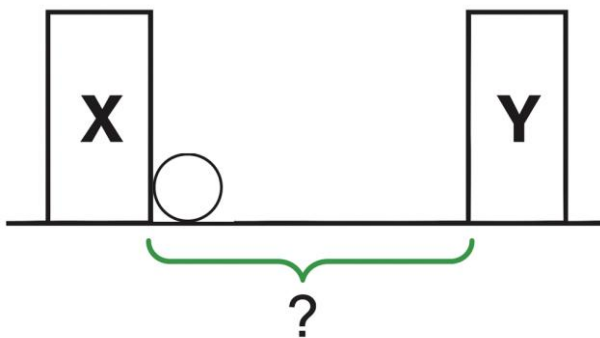


Area of square ABCD = ... (5)

16. A wheel with diameter 21 cm completed 10 revolutions as it rolled from wall X to wall Y. What was the distance between the two walls?

(Take $\pi = \frac{22}{7}$)

Diagram not accurately drawn



Distance between the two walls = ... (5)

17. $\frac{1}{5}$ of Ben's money was £12 more than $\frac{1}{3}$ of Joss's money. When Ben gave Joss £50, both of them had the same amount of money in the end. How much did Ben have at first?

..... (5)

End of Paper



HARROW
SCHOOL

Scholarship Examination 2026

Mathematics II

Time: **90 minutes**

Instructions and advice

Write your solutions on lined paper, using blue or black ink or pencil.
Calculators, geometric instruments (protractor, set square, compass etc.) and squared paper may NOT be used.

Write on only one side of the paper and start your answer to each question on a fresh sheet. Make sure the question number and your name are clearly written on each sheet.

This paper is designed to be very challenging.

Very few (if any) candidates are expected to finish it.

Greater credit will be given for a smaller number of complete solutions to some of the questions rather than a larger number of incomplete attempts.

You do not need to attempt the questions in the order in which they are presented (indeed, you are advised to first read all the questions then start by attempting those with which you feel the most comfortable).

You must show all your working and explain all your reasoning.

PLEASE NOTE: This paper is not just about getting the right answers; correct answers on their own will earn few marks. You will be marked more on the PRESENTATION of your solutions, the EXPLANATION of your working and the JUSTIFICATION of your final answers.

1. You are given that $123 \times 369 = 45\,387$.

Using this fact, or otherwise, work out:

- a) 12.3×3.69
- b) $0.0045387 \div 0.123$
- c) $\sqrt{\frac{45387}{27}}$
- d) 246^2
- e) $45\,387\,453\,870 \div 1\,230\,000$
- f) 135.3×369

NB although it is possible to directly calculate all these values, you are strongly advised to think about alternative methods.

2. Luke has some coins and some bags.

If he puts 14 coins in each bag, he has one bag left over.

If he puts 11 coins in each bag, he has one coin left over.

How many coins and bags does he have?

3. According to a linguistic study conducted in 2023, the average English-speaking person spends 87 minutes of each day speaking.

I counted the number of words on a single page of a paperback book and found there were 308.

If every word you spoke was printed in a series of books, decide, by making some assumptions (which you should justify) and approximate calculations, whether you would be able to carry a year's worth of speech in one go.

4. In this question, when N is an integer, we will use

$\overline{N}$ to mean the smallest positive integer whose square is at least N ; and

$\underline{N}$ to mean the largest positive integer whose square is at most N .

So, for example, $4^2 < 20$ and $5^2 > 20$, so $\underline{20} = 4$ and $\overline{20} = 5$.

- a) Find:

i. $\overline{200}$

ii. $\underline{(85)}$

- b) Find all the possible values of A , given that $\underline{A} = 4$
- c) Find all the possible values of B , given that $\underline{3B} = 5$
- d) Find all the possible values of C , given that $\underline{4C} = 7$ and that $\overline{6C} = 9$.
- e) What can you say about N if $\underline{N} = \overline{N}$?
- f) If $\underline{N} \neq \overline{N}$, what is the relationship between $\underline{N}$ and $\overline{N}$?
- g) Is it ever possible for $\underline{(\overline{N})}$ to be different from $\overline{(\underline{N})}$?

Give a brief justification of your answer.

5. Start with the numbers from 1 up to n (where $n > 1$) written in a circle. Now, starting from 2, go round the circle crossing out every alternate number that hasn't been crossed out already (so starting with 2, 4, etc.). Keep going (round the circle as many times as required) until you have one number left which has not been crossed out.

For what values of n will this last number be 1?

Hint to get you started: what happens if n is odd?

6. The question is about rates.

- a) If I turn the cold tap on, my bath will fill in 7 minutes.

If I turn the hot tap on, my bath will fill in 8 minutes.

- i. What fraction of the bath fills in one minute if:

a) I turn on the cold tap?

b) I turn on the hot tap?

- ii. What fraction of the bath fills in one minute if both taps are turned on?

- iii. Using your answer to (ii), determine, to the nearest second, how long it would take for the bath to fill up if both taps are turned on.

- b) Ahmed regularly travels up an escalator at the tube station on his way to school. If he stands on the escalator, it takes him 60 seconds to travel from the bottom to the top.

One day the escalator was broken, so he walked up it – this took him 90 seconds.

How long would it take him to travel from the bottom to the top if he walked up it while it was working?

- c) Ryan, Santosh and Tony are all decorators. They each work at different, constant rates.

If Ryan and Santosh work together, they can paint a room in 6 hours. If Ryan and Tony work together, they can paint a room in $7\frac{1}{2}$ hours. If Santosh and Tony work together, they can paint a room in 10 hours.

If they all work together to paint a single room, how long, will it take them to finish the job?

7. Find, with proof, how many different ways it is possible to pay exactly 20p using standard coins (1p, 2p, 5p, 10p and 20p).

There are no questions printed on this page.



HARROW
SCHOOL

Philosophy and Applied Ethics
Scholarship Examination 2026

75 minutes

You have 30 minutes to read through reading on Book VII of The Republic and then 45 minutes to answer the question. Do take time to plan and draft your answer.

Please write in blue or black ink.

Aristotle (385–322 BCE) was an ancient Greek philosopher and scientist. Some of Aristotle's best-known works on ethics can be found in his book *Nicomachean Ethics*, which was published in approximately 340 BCE. In this excerpt from his book, Aristotle defines three types of friendship.

The Nicomachean Ethics by Aristotle

(translated by F H Peters)

Some definitions:

1. **Ascertain** (*verb*): to find something out for certain
2. **Discrepancy** (*noun*): a lack of similarity between two or more facts
3. **Virtue** (*noun*): morally good behaviour or character

Those who suppose that there is only one kind of friendship, because it admits of degrees, go upon insufficient grounds. Things that differ in kind may also differ in degree...

Perhaps these difficulties will be cleared up if we first ascertain what is the nature of the lovable. For it seems that we do not love anything, but only the lovable, and that the lovable is either good or pleasant or useful. But useful would appear to mean that which helps us get something good, or some pleasure: so that the good and the pleasant only would be loved as ends.

Now, do men love what is good, or what is good for themselves? For there is sometimes a discrepancy between these two.

The same question may be asked about the pleasant.

[...]

The kinds of friendship accordingly are three, being equal in number to the motives of love; for any one of these may be the basis of a mutual affection of which each is aware.

Now, those who love one another wish each other's good in respect of that which is the motive of their love. Those, therefore, whose love for one another is based on the useful, do not love each other for what they are, but only in so far as each gets some good from the other.

It is the same also with those whose affection is based on pleasure; people care for a wit (wit = a funny, clever person) for instance, not for what he is, but as the source of pleasure to themselves.

Those, then, whose love is based on the useful care for each other on the ground of their own good, and those whose love is based on pleasure care for each other on the ground of what is pleasant to themselves, each loving the other, not as being what he is, but as useful or pleasant.

These friendships, then, are “accidental” for the object of affection is loved, not as being the person or character that he is, but as the source of some good or some pleasure. Friendships of this kind, therefore, are easily dissolved, as the persons do not continue unchanged; for if they cease to be pleasant or useful to one another, their love ceases. But the useful is nothing permanent, but varies from time to time. On the disappearance, therefore, of that which was the motive of their friendship, the friendship itself is dissolved, since it existed solely with a view to that.

[...]

The friendship of young men is thought to be based on pleasure; for young men live by impulse, and, for the most part, pursue what is pleasant to themselves and what is immediately present. But the things in which they take pleasure change as they advance in years. They are quick to make friendships, therefore, and quick to drop them; for their friendship changes as the object which pleases them changes; and pleasure of this kind is liable to rapid alteration.

[...]

But the perfect kind of friendship is that of good men who resemble one another in virtue. For they both alike wish well to one another as good men, and it is their essential character to be good men. And those who wish well to their friends for the friends' sake are friends in the truest sense; for they have these sentiments towards each other as being what they are, and not in an accidental way: their friendship, therefore, lasts as long as their virtue, and that is a lasting thing.

Question:

One of Harrow's values is *fellowship*.

Reflect on the following statement:

“School is the best place to make friends.”

Please evaluate this view.

In your answer you should:

- make references to Aristotle's ideas about friendship in the text above;
- give reasoned arguments to support this statement;
- give reasoned arguments to support a different point of view; *and*
- reach a justified conclusion.



HARROW
SCHOOL

Scholarship 2026

Science

Name:

Current school:

Invigilators Instructions

- Issue graph paper. Candidates should clearly name their page and collate with the exam script.
- Read the candidate guidance below.

Candidate instructions

- You should use blue or black ink for text.
- You may use a calculator.
- You may use a pencil and a ruler for diagrams.
- Answer all questions on the exam paper. If there is insufficient space to correct or rewrite your answer, ask the invigilator for a piece of extra paper and name it clearly.
- Multiple choice section: clearly select the best answer from A-D

Candidate guidance

The content and style of questions and material covered may feel unfamiliar. However, you should be able to tackle the problems using the information provided in the questions, combined with your learnt knowledge.

Aim not to leave any blank answers. If stuck, move on to try to attempt all questions.

Section		Score
A	Data Analysis, Chemistry	/ 23
B	Comprehension, Biology	/ 16
C	Problem Solving, Physics	/ 23
D	Multiple Choice	/ 22

Total	/ 84
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Duration: 90 mins

Section A: Data Analysis (Chemistry)

This question is about “patination”, the corrosion of metals in air.

Rust is the name given to corrosion of iron metal. Copper is much less reactive so does not readily corrode, for example it is used to make water pipes.

However, copper can react in polluted environments.

Typical reactions

Slowly reacts with the oxygen in air forming a copper oxide.



Oxidation continues, forming a different copper oxide.



The CuO can then react with moisture and carbon dioxide gas in the air.



This compound, $\text{Cu}_2\text{CO}_3(\text{OH})_2$, has the iconic turquoise (blue-green) colour. associated with copper structures/buildings.

The Statue of Liberty was originally the typical red-brown copper colour

This is the same for the spire of Harrow School Chapel and the nearby lamp post.



Q1. New Yorkers originally wanted to raise money to clean the Statue of Liberty. From your knowledge of chemistry, suggest a substance they could have used to react with the newly formed copper compound.

..... [1]

Q2. The compound produced in reaction 3 has the chemical formula $\text{Cu}_2\text{CO}_3(\text{OH})_2$.

Write the name and number of atoms of each element in the formula.

[2]

.....
.....

Q3. The formula mass of a compound is the sum of the atomic mass of each element

for example, H_2O is $(1 \times 2) + 16 = 18$

CO_2 is $12 + (16 \times 2) = 44$

In the same way, calculate the formula mass for the compound produced by reaction 3, $\text{Cu}_2\text{CO}_3(\text{OH})_2$.

[Relevant atomic masses $\text{Cu} = 64$ $\text{O} = 16$ $\text{C} = 12$ $\text{H} = 1$]

[2]

Table 1 summary of colour and formation of copper corrosion

Colour	Associated with	Compound	Formation Reaction
Green (associated with wet conditions)	moisture and carbon dioxide	carbonates	
green	carbon dioxide and moisture in air	Copper Carbonate CuCO_3	$\text{Cu} + \text{CO}_2 + \text{H}_2\text{O} \rightarrow \text{CuCO}_3 \cdot \text{H}_2\text{O}$
green-turquoise	humid environments - most common type of patina e.g. Statue of Liberty. copper roofs	$\text{Cu}_2(\text{OH})_2\text{CO}_3$ basic copper carbonate	$2\text{Cu} + \text{CO}_2 + 2\text{H}_2\text{O} \rightarrow \text{Cu}_2(\text{OH})_2\text{CO}_3$
Bluish-green / Turquoise	Pollution, sea air	sulfates & chlorides	
blue to blue-green	sulphur compounds in air or water - usually more polluted environments.	copper(II) sulfate CuSO_4	$\text{Cu} + \text{SO}_2 + \text{O}_2 + \text{H}_2\text{O} \rightarrow \text{CuSO}_4 \cdot \text{H}_2\text{O}$
green to turquoise	chloride ions from seawater or salty air	copper chloride CuCl_2	$\text{Cu} + 2\text{Cl}_2 \rightarrow \text{CuCl}_2$
Blues	alkaline pollution or humidity	hydroxides	
blue	water and hydroxide ions; particularly alkaline conditions	copper(II) hydroxide $\text{Cu}(\text{OH})_2$	$\text{Cu} + 2\text{H}_2\text{O} \rightarrow \text{Cu}(\text{OH})_2$
Rainbow multi-coloured ('iridescent', 'variegated')	acidic pollution; long-term environmental stress	oxysalts	
greenish-blue, turquoise	with acetic acid (common in urban pollution)	copper(II) acetate $\text{Cu}(\text{C}_2\text{H}_3\text{O}_2)_2$	$\text{Cu} + 2\text{CH}_3\text{COOH} \rightarrow \text{Cu}(\text{C}_2\text{H}_3\text{O}_2)_2$
bright blue or turquoise	very acidic, polluted environments	copper(II) sulfate hydroxide $\text{Cu}_4(\text{SO}_4)(\text{OH})_6 \cdot 3\text{H}_2\text{O}$	$4\text{Cu} + \text{SO}_2 + 6\text{H}_2\text{O} + \text{O}_2 \rightarrow \text{Cu}_4(\text{SO}_4)(\text{OH})_6 \cdot 3\text{H}_2\text{O}$
Reddish-brown to black	oxygen and sulphur in atmosphere	oxides and sulfides	
black	oxidation	copper(I) oxide Cu_2O	$4\text{Cu} + \text{O}_2 \rightarrow 2\text{Cu}_2\text{O}$
brown	further oxidation	copper(II) oxide CuO	$2\text{Cu}_2\text{O} + \text{O}_2 \rightarrow 4\text{CuO}$ or $\text{Cu} + \text{O}_2 \rightarrow \text{CuO}$
black	industrial environments: sulphur compounds e.g. atmospheric sulphur dioxide	copper(I) sulfide Cu_2S	$2\text{Cu} + \text{S} \rightarrow \text{Cu}_2\text{S}$



'Shine Dome', Australian Academy of Science Canberra



Architects and artists now intentionally use copper because the compounds act as a protective layer, as well as forming these interesting colours. They call this "patination", which often becomes more beautiful with age.

Scientists have studied these copper compounds. Some of their experimental results are summarised in table 1 and table 2. Refer to them when answering the questions.

Q4. State the change of colour observed during reaction 2.

..... [2]

Q5. The product of reaction 3 is probably not the only copper compound to contribute to the colour of the Statue of Liberty. Suggest another compound responsible for its colour, given its location beside the Atlantic Ocean.

..... [1]

Table 2 dataset showing the influence of pollution on copper corrosion

Time (months)	Exposure Concentration (ppb)		Pollution Measure $PM_{2.5}$ ($\mu\text{g}/\text{m}^3$)	Humidity (%)	Temperature ($^{\circ}\text{C}$)	Depth (μm)
	SO_2	NO_x				
1	5	12	10	60	12	0.22
4	8	18	14	65	14	0.85
6	10	25	20	70	16	1.25
8	14	30	27	72	18	1.70
12	18	35	28	75	20	2.57
18	22	45	35	78	21	3.85
24	30	55	42	80	22	5.95
36	38	65	50	82	23	7.75
48	45	75	58	85	24	10.35
60	55	85	67	88	25	12.90

Q6.

i. Use graph paper to plot part of this dataset. Label both axes correctly. [5]

x-axis: Time

y-axis: Depth of the patination (μm)

ii. Draw a line of best fit through the plotted data and circle the anomalous point to identify it. [2]

Q7. Why should time be plotted as the x-axis on this graph?

..... [1]

Q8. State the relationship between time and the depth of patination shown by this graph.

..... [1]

Q9. A student suggested the readings in this table were not measured with enough regularity. State and explain whether or not you agree with this suggestion.

[2]

.....

.....

The data for $\text{PM}_{2.5}$ values represents a transition from **moderately clean** to **heavily polluted urban/industrial air**, which explains the increasing patina thickness.

Environment	$\text{PM}_{2.5}$ ($\mu\text{g}/\text{m}^3$)
Clean rural air	2–8
Urban background	10–25
Polluted city	25–50
Industrial/severe pollution	50–100+

Q10. The centre of a polluted city measured $39 \mu\text{g}/\text{m}^3$. A student suggested that a 73% reduction of this pollution measure would be needed to reclassify the air as “clean rural”.
Show brief working to show if this student is correct.

[2]

Q11. The unit used for gas concentration, ppb, means ‘particles per billion’ of air.
Table 2 indicates that after 6 months of monitoring there were 10 particles of SO_2 measured in every billion particles of air.

i. If a scientist measured 25 particles of SO_2 after 6 months, how many particles of air must have been measured in this sample?

[1]

ii. Again with reference to Table 2, determine how many particles of NO_x would be expected in a sample measuring 3 billion particles of air after exactly 2 years.

[1]

[Question Total: 23 marks]

Section B: Comprehension (*Biology*)

Refer to this article extract to answer the questions that follow.

Wildfires and biodiversity

Contributing articles:

Brown, M. (2025) *Ten English fire services tackled record number of grass, forest and crop fires in 2025*, *The Guardian*, 31st Dec 2025.

Nitnaware, H. (2025) *Global tree cover loss due to fires surged by 370% compared to 2023*.

DownToEarth, 30th Oct 2025.

Davare, R. (2022) *The impact of wildfires on biodiversity and the environment*, Earth.Org, 5 August.

Wildfires are large, uncontrolled fires that burn vegetation across landscapes, from grasslands to dense forests, and have been a natural part of many ecosystems for millions of years. However, in recent decades their frequency, intensity and geographical reach have increased due to a combination of human activity and climate change. In 2025, for example, almost **27,000 wildfires** were recorded in England alone – more than four times the number seen in the same spring period in 2024 – illustrating how unusual weather patterns are driving fire outbreaks even in regions where fires were once rare.

Globally, fires have surged dramatically. Data from 2024 indicates that **tree cover loss due to wildfires increased by 370%** compared with 2023, resulting in the burning of millions of hectares of primary forest. Such large fires release enormous amounts of carbon dioxide into the atmosphere, which further accelerates climate change.

The **impact on biodiversity** is profound. Wildfires destroy the habitats of many species, killing slow-moving animals, displacing wildlife, and eliminating plant communities that cannot quickly regenerate. Even when fires are part of an ecosystem's natural cycle, unusually intense or frequent fires can push sensitive species toward extinction. In tropical forests – which harbour more than **80% of terrestrial biodiversity** – fires are especially damaging because most native species have not evolved with intense fire regimes and cannot easily recolonise burned areas.

While some ecosystems benefit from periodic, low-intensity fires that can encourage new growth and increase diversity, the current trend of **mega-fires** driven by drought, heatwaves and dry vegetation creates conditions that many species cannot withstand. High-intensity fires can alter soil composition, reduce food availability and fragment habitats, making ecosystems less resilient and contributing to long-term declines in biodiversity.

- Q1. The text states that global tree cover loss due to wildfires increased by **370%** from 2023 to 2024. If **2 million hectares** of tree cover were lost to wildfires in 2023, calculate the approximate area lost in 2024. Show your working. (3)

Answer _____

Q2. Wildfires release large amounts of carbon dioxide into the atmosphere when vegetation burns.

a) Write the **word or symbol equation for photosynthesis**. (2)

_____ + _____ → _____ + _____

b) Explain how wildfires contribute to increased levels of carbon dioxide in the atmosphere. (2)

.....

.....

.....

.....

Q3. Suggest why the loss of trees and vegetation affects food chains in an area long after the fire has occurred. Your answer should refer to producers, consumers and energy transfer. (4)

.....

.....

.....

.....

.....

.....

.....

.....

.....

Q4. Global warming is considered a major contributor to the increase in wildfires around the world. It is also considered a key contributor to declining biodiversity.

In 2024, researchers forecast that in the next 50 years 14–32% of macroscopic species will suffer climate-related extinction.

Define extinction. (1)

.....

.....

Q5. To survive increasing global temperatures and changes in seasonal patterns some species have adapted. An example of this is the snowshoe hare. Below are two images of snowshoe hares.



a) Describe one of the differences between the two.

(1)

.....

.....

b) In recent years researchers have observed a trend of snow hares showing increasing prevalence of atypical coat colours such as brown bodies, brown-ringed eyes or brown ears. Suggest a reason for this trend.

(3)

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[Question Total: 17 marks]

Section C: Problem Solving (Physics)

We can get the wrong idea about the laws of physics, especially from films, television or cartoons. One misconception is that to avoid the impact of a fall (say in a plane which has lost power) you could jump at the moment of impact. This question explores that idea. Have in mind an imaginary scenario where someone, a superhero let's say, is 'riding' a plane to the ground. The superhero does not have any special ability to fly or to jump higher than a normal human.



The equations below will be relevant to this question.

- **$g = 10 \text{ N/kg}$** is the 'gravitational field strength' of the Earth. It gives the intrinsic strength of the Earth's gravitational field at its surface.
- **weight = mass $\times$ g** . In this equation, mass is measured in kilograms (kg) while weight is measured in newtons (N).
- **change in gravitational potential energy = mass $\times$ g $\times$ change in height**. Gravitational potential energy (GPE) is the energy an object has due to its height in a gravitational field. In this equation, mass is measured in kg, height in metres (m) and GPE in joules (J).
- **kinetic energy = $\frac{1}{2} \times \text{mass} \times (\text{speed})^2$** . Kinetic energy (KE) is the energy an object has due to its motion. With mass in kg and speed in 'metres per second' (m/s), KE is in joules here.
- **Speed = distance/time**. This formula objects whose speed is not changing. Here, distance is measured in metres and time in seconds (s) giving speed in m/s.
- **acceleration = change in speed/time**. When the speed of an object changes, we say that it accelerates. An acceleration which causes speed to reduce, rather than increase, is often called 'deceleration'. With speed in m/s and time in seconds, acceleration is measured in 'metres per second per second', written as m/s^2 . E.g. an object accelerating at 5 m/s^2 gains 5 m/s of speed each second.
- **Net force = mass $\times$ acceleration**. The net force (i.e. overall force) which causes an object to accelerate may be found using this formula, with mass in kg and acceleration in m/s^2 giving force in N.

In all your answers below, round numerical values to 2 significant figures (2 sig figs) unless told otherwise.

1. Estimate superhero's mass in kg and calculate his weight in N.

Mass = _____ kg

Weight = _____ N (2)

2. The world men's high jump record, set in 1993, is 2.45 metres. Taking this as 2.5m (to 2 sig figs), calculate the increase in gravitational potential energy, in joules, gained in such a jump if the mass of the person is as you estimated in the Q1.

(2)

3. How much energy due to motion, therefore, must the high jumper in the previous question give themselves as they leave the ground in order to reach this height.

(1)

4. Using your answer to Q3, show that the speed of the high jumper as they leave the ground is about 7 m/s.

(3)

5. An estimate of the constant speed of a freely falling object such as an airplane just before it hits the ground is 120 mph (miles per hour). Given that 1 mile = 1609 metres, calculate this speed in metres per second.

(3)

6. What, therefore, would the minimum net speed of our superhero be, in m/s, if he were to jump at the moment of impact?

(1)

7. Why would this be a minimum and could a high-speed impact be avoided this way?

(1)

Armed with this information our superhero decides to jump a little earlier than the moment of impact to see if this would make a difference.

8. Think of a jump very simply as a movement upwards followed by a movement downwards, all the while being pulled towards the surface of the Earth by its gravitational pull. What is the speed of someone at the top of a jump?

(1)

9. The effect of the Earth's gravitational pull is to cause objects which are moving vertically to accelerate (or decelerate) by 10 m/s^2 . Using your answer to the previous question, calculate the time it takes our superhero, leaving the ground at 7 m/s , to reach the top of their jump. 1 sig fig is fine for your answer.

(2)

10. In this time, how far does the plane fall? Give your answer in metres.

(1)

11. The superhero jumps when the plane is precisely this high (Q10) above the ground. How high above the ground are they at the top of their jump?

(1)

12. Recalling that the superhero jumped upwards from a plane moving downwards at 120 mph , how fast is the superhero moving towards the ground at the top of their jump?

(1)

13. At this speed, how long will it take them to reach the ground? Give your answer to 1 significant figure.

(1)

Your answer here should indicate that the superhero's speed will change little between this point and impact with the ground. For the next question assume it does not change at all.

14. The time it takes for an impact to happen in, say, a car crash is around 0.2 seconds (with no seatbelt or airbags etc.). Taking this as the impact time here, calculate the net force applied to the superhero to stop them on impact.

(1)

15. The strongest bone in the human body is the thigh bone, known as the femur. A force of 4000 N is required to break a femur. What is the likelihood of serious injury?

(1)

In reality, impacts are far from this simplistic. At high speeds, especially, the chances of broken bones are one of the least of the concerns.

[Question Total: 23 marks]

Section D: Multiple Choice Questions

Q1. A scientist used chromatography to analyse a sample.

1. The sample that moved the furthest is the least soluble in the solvent.
2. If one sample does not dissolve, a different solvent could be used.
3. The samples should not be allowed to move to the top/end of the paper.

Which statements is/are correct:

- A. All three are correct.
- B. Only 2 and 3 are correct
- C. Only 1 is correct.
- D. Only 1 and 3 are correct.

Your answer

☐

Q2. In which row are the applications most suited for the metals given?

Application			
Roofing and piping	Jewellery	Protecting the surface of iron from rusting	Constructing the body of an aircraft
A gold	aluminium	lead	zinc
B aluminium	zinc	gold	lead
C zinc	lead	aluminium	gold
D lead	gold	zinc	aluminium

Your answer

☐

Q3. Which process, like a sieve, separates particles from water due to difference in size?

- A Distillation
- B Filtration
- C Sedimentation
- D Chlorination

Your answer

☐

Q4. Which of these statements is correct for the reaction:

copper + hydrochloric acid →

- A. Fizzing would be observed
- B. This is a displacement reaction
- C. No reaction would take place
- D. The copper disappears

Your answer

☐

Q5. When heated strongly, a metal carbonate reacts like this:

sodium carbonate → sodium oxide + carbon dioxide

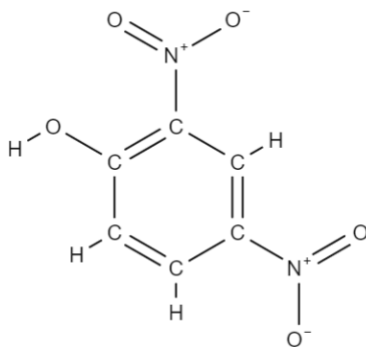
This reaction is known as:

- A. Neutralisation
- B. Oxidation
- C. Reduction
- D. Thermal decomposition

Your answer

☐

Q6. Count the atoms to suggest the chemical formula of this compound.



- A C₄H₆N₅O₂
- B C₄H₆N₅O₅
- C C₆H₄N₂O₅
- D C₆H₅N₂O₂

Your answer

☐

Q7. A student predicted 100g of water would be boiled to produce 100g of steam.

Identify the correct statement

- A. He is not correct. Mass is only conserved when chemical reactions take place and this is not an example of a reaction.
- B. He is correct because heating causes the particles to move around faster and spread apart.
- C. He is correct and this can be easily proven by weighing the beaker of water once it has cooled.
- D. He is correct because mass is conserved when physical changes take place, and this can be proven by showing the beaker has not changed mass at the end.



Your answer

Q8. The scientist Rosalind Franklin produced arguably the world's most famous x-ray that was pivotal to the discover of which biological phenomena?

- A. The molecular structure of DNA
- B. The structure of proteins
- C. The process of cell division
- D. The mechanism of enzyme action

Your answer

Q9. Which of the following is a process that is NOT demonstrated by ALL living organisms?

- A. Reproduction
- B. Nutrition
- C. Breathing
- D. Growth

Your answer

Q10. Which structure controls the movement of substances into and out of a cell?

- A. Cell wall
- B. Nucleus
- C. Cell membrane
- D. Cytoplasm

Your answer

Q11. Which of the following is an example of a continuous variation in humans?

- A. Blood group
- B. Height
- C. Eye colour
- D. Ability to roll the tongue

Your answer

☐

Q12. Cows are herbivores that feed mainly on grass.

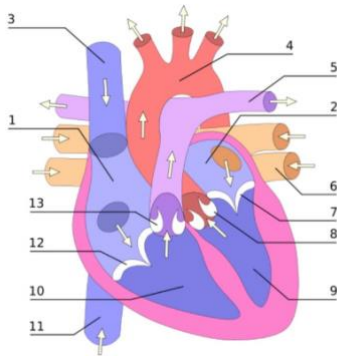
Which feature of their teeth is most closely linked to this diet?

- A. Long, pointed canines for tearing meat
- B. Sharp incisors adapted for piercing prey
- C. Short, smooth molars suited to swallowing food whole
- D. Broad, ridged molars with large surface area for grinding cellulose

Your answer

☐

Q13. Select the FALSE statement about this labelled structure of the heart.



- A. 3 and 6 are both arteries
- B. 9 and 10 are both ventricles
- C. 7, 8, 12 and 13 are all valves
- D. 4 is the aorta

Your answer

☐

Q14. Two students measure their heart rates before and after exercise.

Student A: resting heart rate = 60 beats per minute, after exercise = 140 beats per minute

Student B: resting heart rate = 72 beats per minute, after exercise = 156 beats per minute

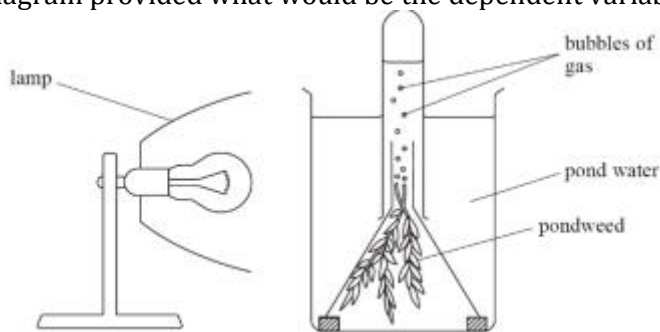
Which statement correctly compares the percentage increase in heart rate for the two students?

- A. Student A has the greater percentage increase
- B. Student B has the greater percentage increase
- C. Both students have the same percentage increase
- D. There is not enough information to decide

Your answer

☐

Q15. A student uses the apparatus below to investigate the rate of photosynthesis. Based on the diagram provided what would be the dependent variable?

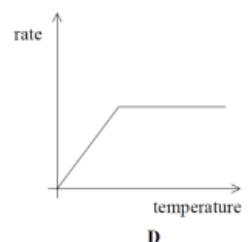
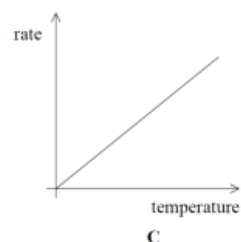
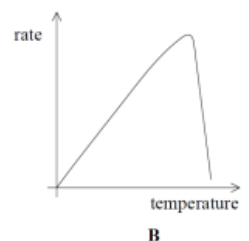
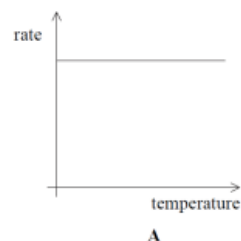


- A. The distance between the lamp and the pond weed
- B. The temperature
- C. The number of bubbles of gas
- D. The concentration of carbon dioxide

Your answer

☐

Q16. Which of the four graphs below correctly shows the effect of increasing temperature on rate of diffusion?



Your answer

☐

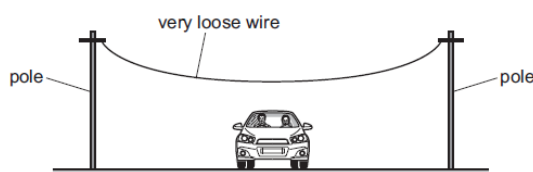
Q17. Which feature can be used to distinguish insects from spiders?

- A. Insects have eight legs, whereas spiders have six legs
- B. Insects have three body segments, whereas spiders have two body segments
- C. Insects do not have an exoskeleton, whereas spiders do
- D. Insects have no jointed limbs, whereas spiders do

Your answer

Q18.

A telephone engineer connects a wire between two poles when the weather is very cold.
He makes the wire very loose. The wire passes over a road.



The weather changes and it becomes very hot.

What could happen to the wire and why?

	what could happen	why
A	it breaks	it contracts
B	it breaks	it expands
C	it sags and touches cars on the road	it contracts
D	it sags and touches cars on the road	it expands

Your answer

Q19.

An experiment is carried out to measure the extension of a rubber band for different loads.

The results are shown below.

load/N	0	1.0	2.0	3.0
length/cm	15.2	16.2		18.6
extension/cm	0	1.0	2.1	3.4

Which figure is missing from the table?

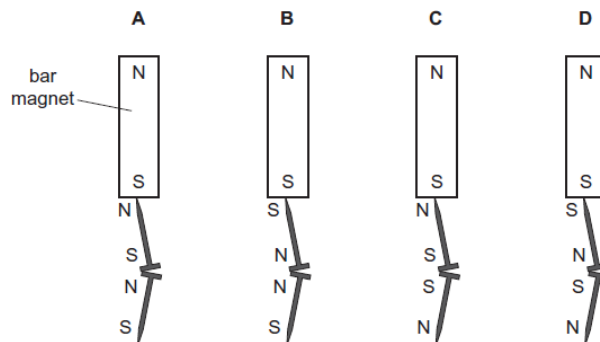
- A 17.2 B 17.3 C 17.4 D 17.6

Your answer

Q20.

Two iron nails hang from a bar magnet.

Which diagram shows the magnetic poles induced in the nails?



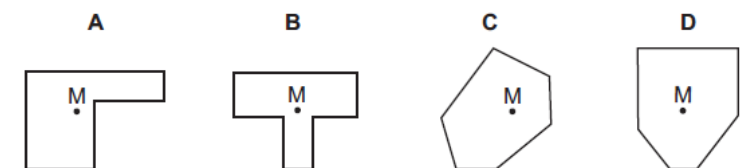
Your answer

Q21.

The diagram shows four objects on a flat surface.

The centre of mass of each object is marked M.

Which object is about to fall over?



Your answer

Q22. An intelligent colony of kangaroos measures force in kicks and length in ears where 1 kick = 3500 N and 1 ear = 12 cm.

Atmospheric pressure is 100,000 N/m² or 10 N/cm². How would the kangaroos represent it?

- A. 2920 kick / ear²
- B. 240 kick / ear²
- C. 24 kick / ear²
- D. 0.4 kick / ear²

Your answer

End of Question Paper



Harrow School 13+ Spanish Scholarship Examination 2026

Section 1: Reading Comprehension and Grammar

Section 2: Translation

Section 3: 130–150-word response in Spanish

Time: 1 hour

Dictionaries are NOT allowed.

GENERAL INSTRUCTIONS:

Write your answers on the examination paper unless specified.

The marks are shown at the end of each exercise. Use your time accordingly.

SECTION 1–READING COMPREHENSION AND GRAMMAR

(Total: 34 marks)

Read the text below and answer the questions that follow **in English**.

Los creadores de Zara: una historia de innovación y trabajo

Amancio Ortega nació en una familia humilde del norte de España. Desde joven trabajó como repartidor en una tienda de camisas, donde observó que mucha gente quería ropa moderna pero no podía pagar precios altos. Esa idea lo acompañó durante años. En 1963, junto con su entonces esposa Rosalía Mera, comenzó a fabricar batas y otras prendas desde su casa, cosiendo las piezas ellos mismos y vendiéndolas a pequeñas tiendas locales.

El gran cambio llegó en 1975, cuando abrieron su primera tienda Zara en La Coruña. Su objetivo era simple pero revolucionario: ofrecer moda actual, producirla rápidamente y venderla a precios accesibles. En lugar de seguir las tendencias internacionales, Zara decidió observar lo que querían los clientes en cada momento y diseñar las prendas casi de inmediato. Esta estrategia, llamada “moda rápida”, permitió a la marca adelantarse a sus competidores.

Rosalía Mera jugó un papel fundamental en los primeros años de la empresa. Aportó creatividad, conocía muy bien los gustos de los clientes y era experta en confección. Aunque más tarde se separó de Ortega, continuó como accionista y se convirtió en una de las mujeres más ricas del mundo.

Hoy, Zara forma parte del grupo Inditex, una de las compañías de moda más grandes del planeta, con miles de tiendas en los cinco continentes. A pesar de su éxito, Ortega sigue siendo una persona reservada que evita entrevistas, y prefiere que el trabajo hable por sí mismo. La historia de Zara demuestra cómo la observación, la innovación y el trabajo constante pueden transformar un pequeño proyecto en un fenómeno global.

Questions on the text

(Answer in English)

1. What experience from Ortega’s early life inspired his idea for affordable fashion?

[2 marks]

2. In what year did Ortega and Mera begin producing clothing from their home?

[1 mark]

3. What was the name of the first shop they opened in 1975?

[1 mark]

4. What was Zara's main revolutionary idea, and how did it differ from other fashion companies?

[2 marks]

5. Describe two ways Rosalía Mera contributed to the success of the company.

[2 marks]

6. What is the "fast fashion" strategy, according to the text?

[3 marks]

7. What happened to Mera after she separated from Ortega?

[1 mark]

8. What is Inditex, and what does the text say about its global status?

[2 marks]

9. Why does the text mention that Ortega avoids interviews?

[2 marks]

10. What does the story of Zara show about how businesses can grow?

[2 marks]

Grammar section

(16 marks)

1. Verb conjugation – Preterite and simple future

Conjugate the following verbs in both tenses.

INFINITIVE	PRETERITE	SIMPLE FUTURE
1. observar (yo)		
2. abrir (ellos)		
3. contribuir (ellas)		

[6 marks]

2. Adjective agreement

Correct the gender and number mistakes, if required.

1. *Rosalía era un mujer muy creativos.*

2. *Los primeros tiendas eran pequeños y popular.*

3. *Zara produce ropa moderno y accesible.*

[6 marks]

3. Prepositions

Fill in the correct prepositions.

1. Empezaron a trabajar _____ su casa.
2. Vendían sus productos _____ pequeñas tiendas locales.
3. Observaban la reacción de los clientes _____ decidir qué fabricar.
4. Hoy Zara cuenta _____ miles de tiendas en todo el mundo.

[4 marks]

SECTION 2 – TRANSLATION INTO SPANISH

(16 marks)

Translate the sentences below into Spanish:

1. I used to buy my clothes in small shops, but now I prefer Zara.

2. I would like to learn to play the guitar.

3. I wear a shirt and a tie.

4. My younger brother likes to go out with my friends.

5. Last weekend, my friends visited a shopping centre in Madrid.

6. I normally get up at seven in the morning.

7. This coat is cheaper than that jacket.

8. Zara is one of the most successful fashion brands in the world.

SECTION 3 – WRITING

(20 marks)

Write on lined paper.

Narrative writing – leisure activities

You are writing about your leisure activities for a Spanish blog. Describe your experience, making sure you include the following details:

- Describe the leisure activities you enjoy doing in your free time.
- Explain why these activities are important to you.
- Describe a leisure activity you did last weekend and what happened.
- Explain a new leisure activity you are planning to try soon

Instructions:

Write your response in **Spanish** using a range of vocabulary, opinions, time expressions, connectives, and at least three tenses.

TOTAL FOR THE PAPER: 70 MARKS