



HARROW SCHOOL

ENGLISH SCHOLARSHIP EXAM 2025

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

Studies have shown that mobile phones in schools affect students' academic progress, social relationships, and their physical and mental health.

Imagine that your Headmaster has decided to respond to this concern and plans to ban use of cell phones in schools – inside and outside classroom time.

Write a speech for your school assembly in which you show either your support for or disapproval of this plan. You might decide that this is a good idea, or perhaps you think it will not work.

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 B: READING

Read the following excerpt from *The Road* by Cormac McCarthy and answer the question that follows.

When he woke in the woods in the dark and the cold of the night he'd reach out to touch the child sleeping beside him. Nights dark beyond darkness and the days more gray each one than what had gone before. Like the onset of some cold glaucoma dimming away the world. His hand rose and fell softly with each precious breath. He pushed away the plastic tarpaulin and raised himself in the stinking robes and blankets and looked toward the east for any light but there was none. In the dream from which he'd wakened he had wandered in a cave where the child led him by the hand. Their light playing over the wet flowstone walls. Like pilgrims in a fable swallowed up and lost among the inward parts of some granitic beast. Deep stone flues where the water dripped and sang. Tolling in the silence the minutes of the earth and the hours and the days of it and the years without cease. Until they stood in a great stone room where lay a black and ancient lake. And on the far shore a creature that raised its dripping mouth from the rimstone pool and stared into the light with eyes dead white and sightless as the eggs of spiders. It swung its head low over the water as if to take the scent of what it could not see. Crouching there pale and naked and translucent, its alabaster bones cast up in shadow on the rocks behind it. Its bowels, its beating heart. The brain that pulsed in a dull glass bell. It swung its head from side to side and then gave out a low moan and turned and lurched away and loped soundlessly into the dark.

With the first gray light he rose and left the boy sleeping and walked out to the road and squatted and studied the country to the south. Barren, silent, godless. He thought the month was October but he wasn't sure. He hadn't kept a calendar for years. They were moving south. There'd be no surviving another winter here.

When it was light enough to use the binoculars he glassed the valley below. Everything paling away into the murk. The soft ash blowing in loose swirls over the blacktop. He studied what he could see. The segments of road down there among the dead trees. Looking for anything of colour. Any movement. Any trace of standing smoke. He lowered the glasses and pulled down the cotton mask from his face and wiped his nose on the back of his wrist and then glassed the country again. Then he just sat there holding the binoculars and watching the ashen daylight congeal over the land. He knew only that the child was his warrant. He said: If he is not the word of God, God never spoke.

Glossary

- * Glaucoma = a common eye condition marked by a cloudy disturbing colour to the eye
- * Rimstone = stone that forms around a pool of water
- * Alabaster = a white material used to carve ornaments
- * Serpentine = like a serpent or snake/a dark green mineral

How does the writer create a sense of desolation and unease in this passage?

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

[25 marks]



HARROW SCHOOL

French Scholarship Examination 2025

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.

La ville est grande, si grande qu'on n'en voit jamais la fin. Peut-être qu'on pourrait marcher des jours et des jours le long de la même avenue, et la nuit viendrait, et le soleil se lèverait, et on marcherait toujours le long des murs, on traverserait des rues, des parkings, des esplanades, et on verrait toujours miroiter à l'horizon, comme un mirage, les glaces et les phares des autos.

C'est cela, partir pour ne jamais revenir. Le cœur de David se serre un peu, parce qu'il se souvient des paroles de son frère Édouard avant qu'il ne parte : « Un jour, je m'en irai, et jamais plus vous ne me reverrez. » Il avait dit cela sans forfanterie, mais avec le regard si plein de sombre désespoir que David était allé se cacher dans l'alcôve pour pleurer. C'est toujours terrible de dire les choses, et puis de les faire.

Aujourd'hui, ça n'est pas un jour comme un autre. La lumière de l'été est venue, pour la première fois, sur les façades des maisons, sur les carrosseries des voitures. Elle fait des étoiles partout, brûlantes pour les yeux, et malgré ses craintes et ses doutes, David se sent tout de même content d'être dans la rue. C'est pour cela qu'il est parti de l'appartement, très tôt, dès que sa mère a refermé la porte pour aller travailler, il est sorti sans même manger le bout de pain beurré qu'elle avait laissé sur la table, il a dévalé les escaliers, et il est sorti, en courant, avec la clé qui battait sur sa poitrine. C'est pour cela, et aussi à cause de son frère Édouard, parce qu'il y a pensé toute la nuit, enfin, une bonne partie de la nuit, avant de dormir.

Example : The town is big

La ville est grande

1. Without boastfulness
2. On his chest
3. He remembers the words
4. The summer light
5. Alongside the walls
6. The bit of buttered bread
7. David had gone to hide
8. The sun would rise
9. Stars everywhere
10. Despite his fears

(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

La ville est grande : the town is big

→ The towns are big :

Les villes sont grandes

1. *Il est parti de l'appartement* : He left the flat

→ She did not leave the flat :

2. *On pourrait marcher* : One could walk

→ I could not walk :

3. *Sa mère a refermé la porte* : His mother closed the door

→ His father did not close the door :

4. *Avant de dormir* : Before sleeping

→ After having slept :

5. *Il avait dit cela* : He had said that

→ You (use 'tu') had never said that :

(15 marks)

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

a) I wake up early. (*se réveiller*)

b) We clean the kitchen. (*nettoyer*)

c) She will not leave. (*partir*)

d) You (use 'vous') would prefer to stay here. (*préférer / rester*)

e) Lucas and Marie danced all night. (*danser*)

f) They (use 'elles') are going to travel by train. (*aller + infinitif*)

g) I had spoken to my friend. (*parler*)

h) He brushed his hair. (*se brosser les cheveux*)

i) You (use 'tu') eat nothing. (*manger*)

j) He was reading a novel. (*lire*)

(30 marks)

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

You will describe 1) the person with whom you get on best; 2) how you celebrated your last birthday; 3) a journey that you would like to make; 4) how you are going to help your parents this weekend.

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).

1. Décris la personne avec qui tu t'entends le mieux. Quelles sont ses qualités personnelles ?

(40 marks)

2. Comment as-tu fêté ton dernier anniversaire ?

3. Décris un voyage que tu aimerais faire. Où voudrais-tu aller et qu'est-ce que tu voudrais visiter ?

4. Que vas-tu faire ce weekend pour aider tes parents ?



HARROW SCHOOL

Geography Scholarship Examination 2025

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

[spend 30 minutes on this section]

[Total: 20 marks]

1. Explain how physical factors create **at least one** hazard of your choice.

[4 marks]

[illegible]

2. Explain how processes of erosion **and/or** deposition have created **at least one** feature on a coastline of your choice. Use a diagram to support your answer. **[6 marks]**

[6 marks]

[illegible]

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Extra space

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Space for diagram



Figure 1: "City Expansion Plan Under Debate"

"A local council meeting discussed the future expansion of the city into previously undeveloped areas. New housing estates, shopping centres and roadways are set to be built to accommodate the city's growing population. Some residents welcomed the plans, citing the need for affordable homes and better access to services. However, environmental groups expressed concerns, noting that the expansion would cut through local fields and woodland areas. They also warned that, without adequate public transport, more people will rely on cars, potentially increasing traffic congestion and air pollution."

Urban Sprawl

"Urban sprawl is the unplanned and uncontrolled spreading of urban development into areas adjoining the edge of a city."

3. Using **Figure 1**, outline two ways that **urban sprawl** might affect the environment. **[4 marks]**

[illegible]

Figure 2: Employment Changes in the UK (1920–2020)

Year	Primary Sector	Secondary Sector	Tertiary Sector
1920	15%	50%	35%
1950	10%	45%	45%
1980	5%	38%	57%
2020	2%	18%	80%

4. Using **Figure 2** and your own knowledge, explain how the shift in sectors of employment has affected the economy **and/or** built environment of countries like the UK. **[6 marks]**

[illegible]

Extra space

[illegible]

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 to write a balanced answer that 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. 'Managing **global warming** requires both **mitigation** and **adaptation** strategies.' Discuss. **[20 marks]**

OR

2. Assess the effectiveness of **sustainable urban development** in reducing environmental impacts in cities. **[20 marks]**

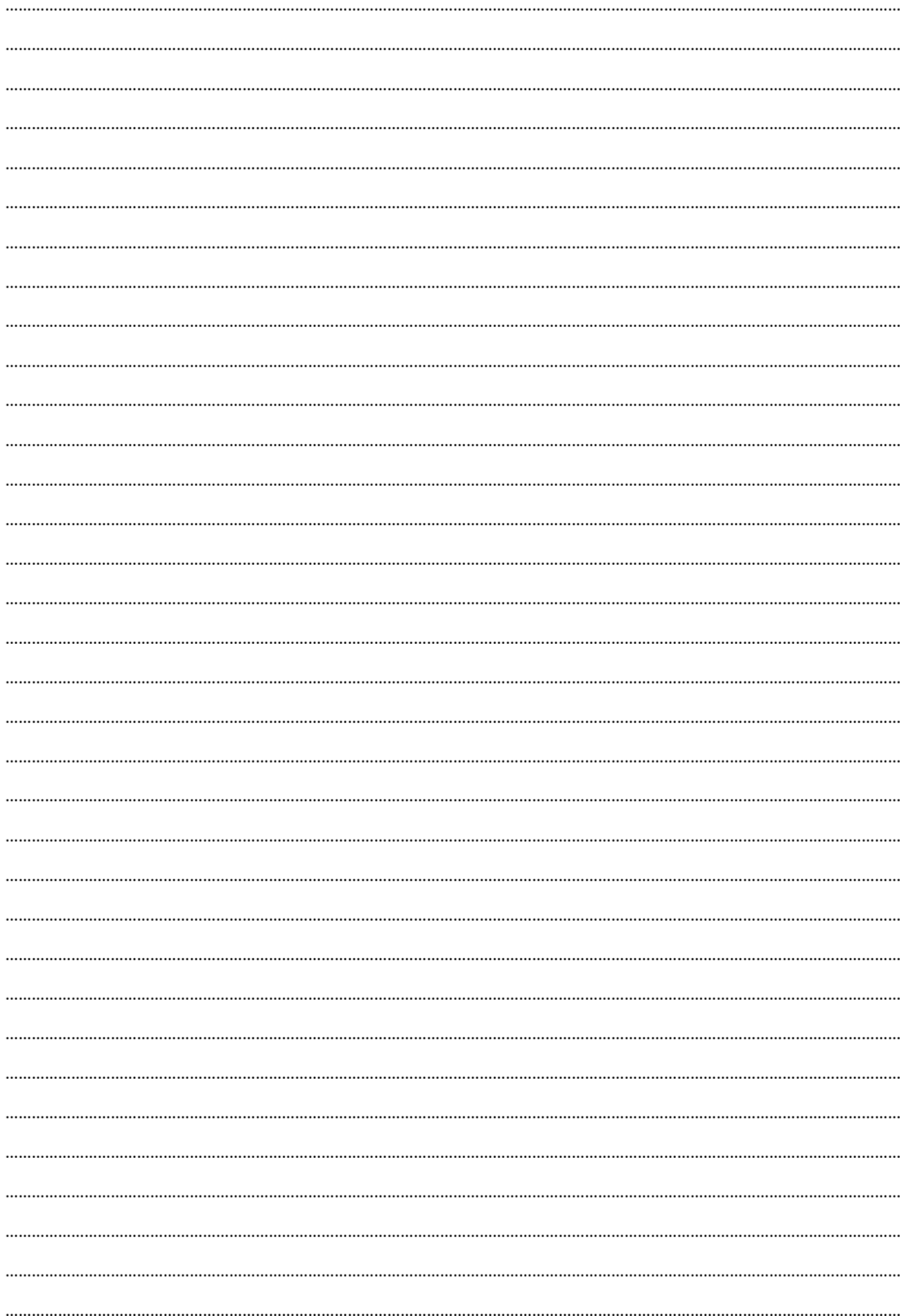
OR

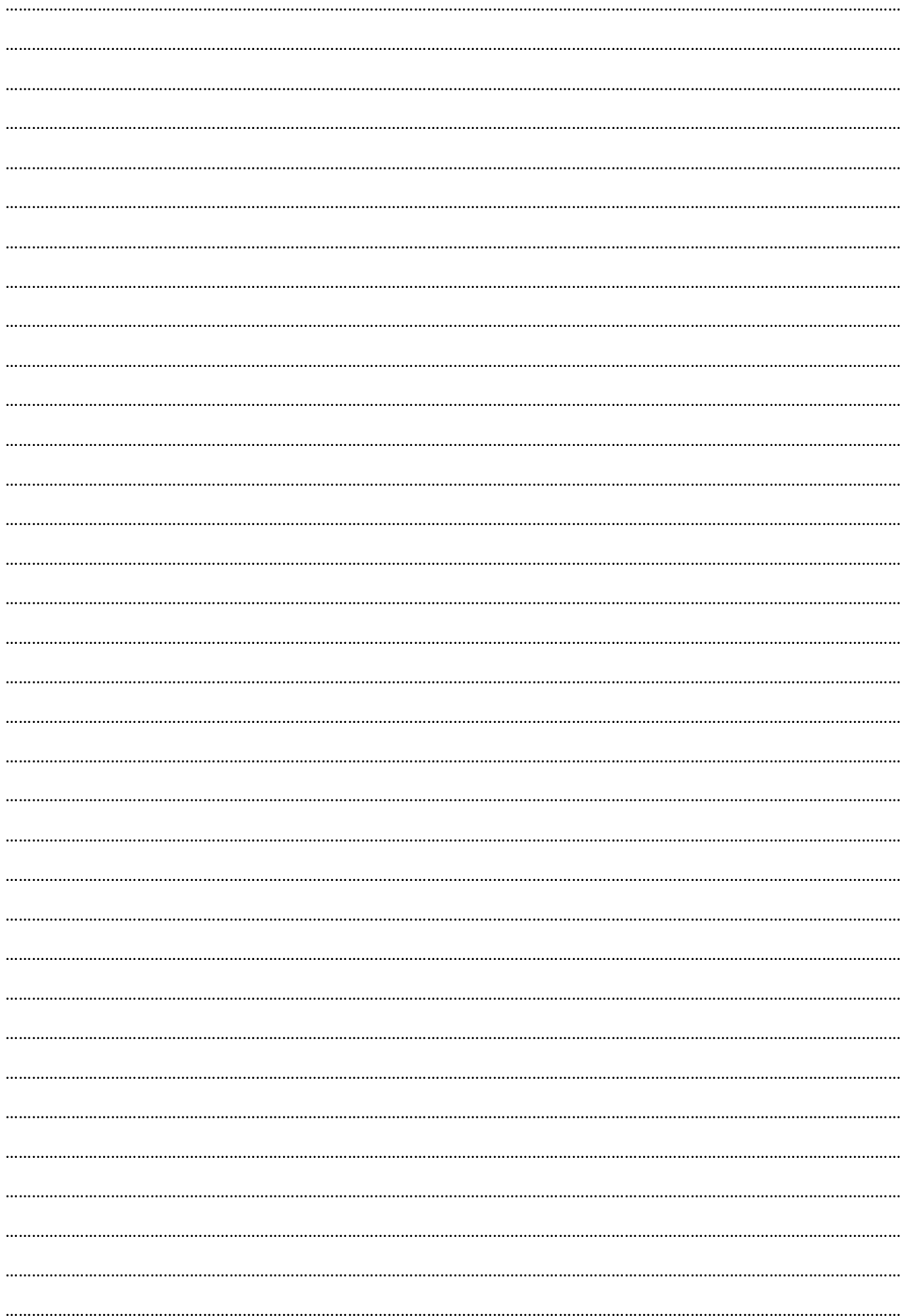
3. 'The impacts of **tectonic hazards** are more severe in low-income countries than in high-income countries.' Do you agree? **[20 marks]**

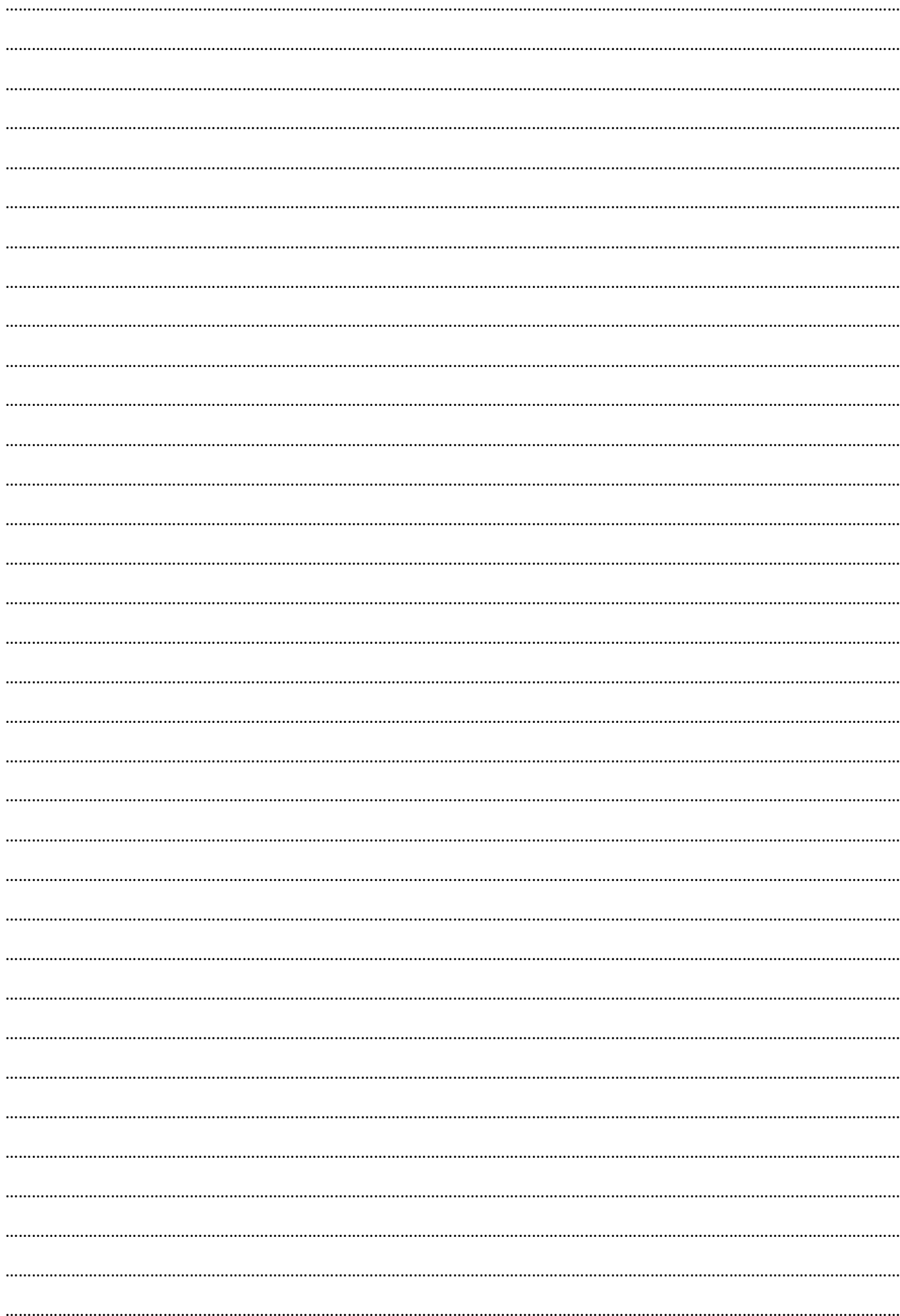
OR

4. Evaluate the success of **soft engineering** techniques in managing river flooding. **[20 marks]**

Space to plan your answer







[illegible]

[Total: 20 marks]

[Exam Total: 40 marks]

END OF EXAMINATION



HARROW SCHOOL

ENTRANCE SCHOLARSHIPS EXAMINATION 2025

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) Διοσκουρος
- (b) Καστωρ
- (c) Χειρων
- (d) Μελανιππη
- (e) Ωκυρροη

[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) Pegasus
- (b) Aeolus
- (c) Kalypsô
- (d) Menelaus
- (e) Odysseus

[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: τους δουλους = τον δουλον (slave)

- (a) τα πλοια
- (b) τους ποταμους
- (c) τοις ιπποις
- (d) οι δημοι
- (e) των τεκνων

[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) του πλοιου
- (b) τον χρυσον
- (c) της οδου

[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) ἔστι

(b) λειψομεν

(c) ἔχω

(d) ἡγαγετε

(e) ἐκρυψας

[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) fugitive

(b) bible

(c) poet

(d) strategy

(e) hypnotise

(f) energy

[6]

7 Write out any TWO of the following:

(a) The full future of *πειθω*.

(b) 2nd declension f. noun *ἡ βιβλος* in all its cases (singular and plural).

(c) Decline the pronouns *ἐγώ* and *ἡμεῖς*.

(d) The neuter definite article (singular and plural).

[8]

SECTION B: Sentences and Composition (35 marks)

1 Translate into English:

(a) τοῖς κριταῖς εἰσὶν ἀγαθαὶ βιβλοὶ;

[4]

(b) οἱ τοῦ νεανίου λόγοι ἦσαν δίκαιοι.

[4]

(c) πεμπομεν δωρα τῷ τοῦ ποταμοῦ θεῷ.

[3]

(d) ἀρ' ἔχεις τὴν μικρὰν βιβλὸν, ὦ δεσποτα;

[4]

(e) ὁ τοῦ ἱατροῦ ἀδελφὸς θεραπεύσει τὰς τῶν τέκνων νοσοῦς.

[4]

2 Translate into Greek:

- (a) The good slave has a bad master. [5]
(b) Is the stranger speaking wicked words in the agora? [5]
(c) We hear the shouts of the barbarians. [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.

The Persian Invasion

During the Persian attack on the Greeks, the Persian general Datis seeks to show mercy in Delos, now that word has spread of the Persian forces' destructive power. This panics the people of the town of Eretria.

ὁ τῶν Περσῶν στρατηγὸς ἤγε τοὺς ναυτὰς εἰς τὴν Δηλὸν· οἱ ἐν τῇ νησῷ πολιταὶ ἀποκινδυνου ἐφευγον. ἀγγελὸς τις τοῦ στρατηγοῦ ἔλεγεν· “ὦ ἄνθρωποι, διὰ τί φευγετε; ὁ Δαρεῖος οὐ χροῖζει τῆς τῆς Δηλοῦ διαφθοράς· ἡ γῆ ἐστὶν ἱερά τῶν θεῶν. βλαψεῖ οὐτε τὴν γῆν οὐτε τοὺς πολίτας. ἔχετε τὰς ἐν τῇ νησῷ οἰκίας.

διὰ τὴν τῶν Περσῶν πολιορκίαν οἱ ἐν τῇ Ἐρετρῷ πολιταὶ ἦσαν ἐν κινδυνῷ. νεανίας τις ἐκ τῶν πολιτῶν ἔλεγεν· “τὰ τῶν πολεμίων ὅπλα ἐστὶ δεινά. οἱ Περσᾶι πολὺν χρόνον φυλαξουσὶ τὴν γῆν καὶ κωλυσσοῦσι ἡμᾶς ἀπὸ τῶν ὁδῶν· ἄρα μὴ χροῖζετε μακρὰς μαχῆς; φευγετε ἀπὸ τῆς Ἐρετρίας!”

Vocabulary

Περσῆς, ου (ὁ)	Persian
ὁ Δαρεῖος	Darius, king of the Persians
χροῖζω (+ gen.)	I want
διαφθορά, ας (ῆ)	destruction
οὔτε... οὔτε...	neither... nor...
ἔχω	(here) I live in
πολιορκία, ας (ῆ)	besieging
ἡ Ἐρετρία	Eretria (a town on the island of Euboea, Greece)
ἄρα μὴ	surely... not...?

END



HARROW SCHOOL

History Scholarship Examination 2025

90 minutes

There are three sections in this examination.

You are advised to spend approximately 30 minutes on each section.

The quality of your answers is more important than the quantity, so spend 5–10 minutes thinking and 20–25 minutes writing for each section.

Each section is worth 30 marks in total.

SECTION A

*Read the background information, and study both sources. Then answer **both** questions.*

Background information: The Reichstag Fire

On 30 January 1933 Adolf Hitler, the leader of the Nazis, was appointed Chancellor (Prime Minister) of Germany. Once he was Chancellor, Hitler took steps to complete a Nazi take-over of Germany. He called another election for March 1933 to try to get an overall Nazi majority in the Reichstag (the German Parliament). He used the same tactics as in previous elections, but now he had the resources of state media and control of the streets. Even so, success was in the balance.

Then, on 27 February 1933, there was a dramatic development: the Reichstag building burnt down. Hitler blamed the Communists and declared that the fire was the beginning of a Communist uprising. He demanded special emergency powers to deal with the situation and was given them by the President, Paul von Hindenburg. The Nazis used these powers to arrest Communists, break up meetings and frighten voters.

There have been many theories about what caused the fire, including that it was an accident, the work of a madman, or a Communist plot. But who was really responsible for the burning down of the Reichstag building?

Source A: an extract from a letter written by a British journalist who witnessed the Reichstag fire, published in a German newspaper in 1959

That evening Hitler himself was not absolutely certain that the fire was a Communist plot. As we walked side by side through the burning building he said, "God grant that this be the work of the Communists!"

Source B: General Halder, Chief of the German Staff, speaking at the Nuremberg War Crimes trial, 1945

At a luncheon on Hitler's birthday in 1942, the conversation turned to the topic of the Reichstag building. I heard with my own ears when Hermann Göring [Hitler's appointed deputy and heir] interrupted the conversation and shouted: "The only one who really knows about the Reichstag is I, because I set it on fire!"

Questions

Question 1

Study Source A. Explain in your own words what Hitler meant when it is reported that he said, “God grant that this be the work of the Communists!” [10 marks]

Question 2

Study Sources A and B. On the basis of the evidence provided by these two sources, who do you think was responsible for the Reichstag Fire? [20 marks]

SECTION B

Answer **ONE** of these questions.

Either

3. “The events of the 20th century have had the most impact on shaping global society in the 21st century.” How far do you agree with this statement? Explain your answer. [30 marks]

or

4. ‘Studying History means that the mistakes of the past are less likely to be repeated in the future.’ How far do you agree with this statement? Explain your answer. [30 marks]

SECTION C

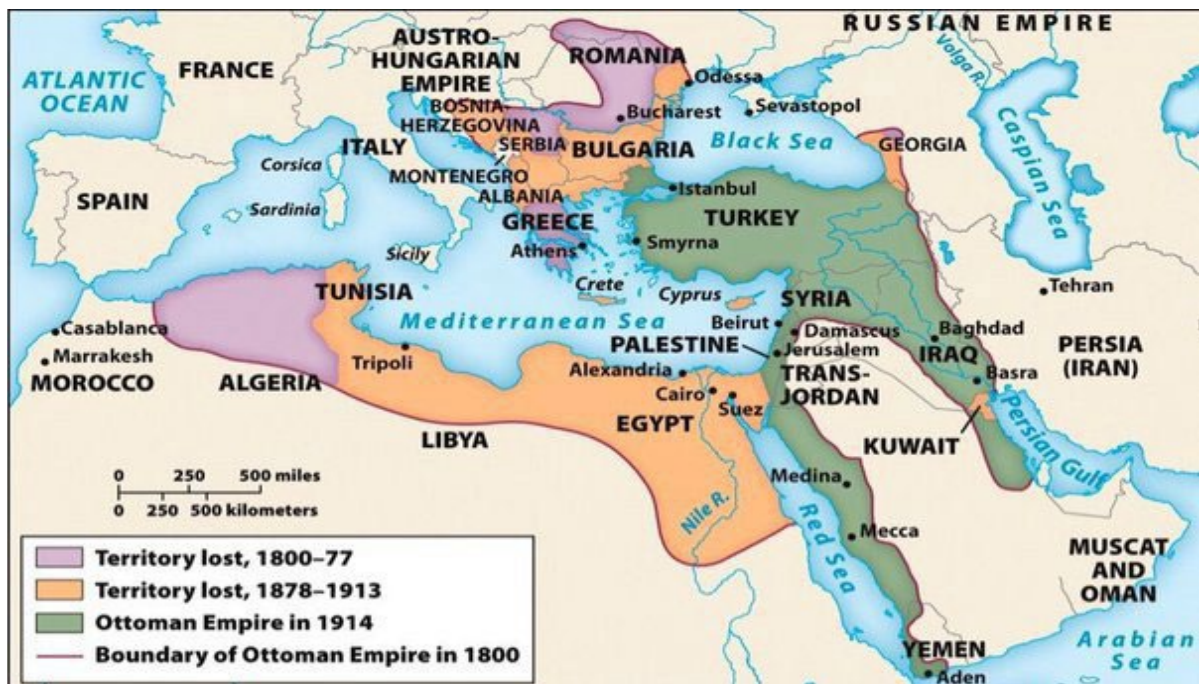
Answer the following question.

5. Study Source C and Source D below. What information do these two sources provide about the rise and fall of the Ottoman Empire between c. 1300 and c. 1914? [30 marks]

Source C: A map of the Ottoman Empire at its peak in c. 1683–99.



Source D: A map of the Ottoman Empire just before its collapse in c. 1914





HARROW SCHOOL

ENTRANCE SCHOLARSHIPS EXAMINATION 2025

LATIN
1½ 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.

King Porsenna of Clusium besieged Rome after the expulsion of the Tarquins, but the young Roman Gaius Mucius attempted to assassinate him and, when captured, proved his bravery.

“transire Tiberim,” inquit, “o senatores, et intrare castra hostium volo, non pro praeda neque ultione. maius in animo est facinus.” laudabant eum senatores. deinde celato intra vestem gladio proficiscitur. ubi ad castra advenit, in turba prope regis tribunal constitit. ibi cum stipendium militibus forte daretur et scriba cum rege sedens simili veste multa ageret, timens rogare uter Porsinna esset, ne se ipse ostenderet quis esset, scribam pro rege necavit. fugientem per turbam territam cruento gladio comprehenderunt regis milites et retraxerunt ad regem. tum quoque timebatur magis quam timebat, “Romanus sum civis”, inquit. “Gaium Mucium me vocant. ego hostis te hostem necare volui, et nec ad mortem paratus sum minus quam fuit ad caedem; facere fortia Romanum est.”

Livy ii, 12

Names

Vocabulary

praeda, f.	plunder
ultio, -onis, f.	revenge
facinus, oris, n.	deed
tribunal, is, n.	tribunal, raised platform
stipendium, -i, n.	pay
scriba, ae, f.	secretary, scribe
vestis, is, f.	clothes
cruentus, a, um	blood soaked
caedis, is, f.	killing

[30 marks]

Section B: Comprehension

The Roman general Marcus Regulus was captured by the Carthaginians during the First Punic War and later sent to Rome to negotiate a prisoner exchange, under oath to return. He refused to support the exchange, but he honoured his oath and returned to Carthage, where he was executed.

Carthaginienses Regulum ducem Romanum, quem ceperant, petiverunt ut Romam proficisceretur et pacem a Romanis obtineret ac permutationem captivorum faceret. ille Romam cum venisset, ductus in senatum nihil quasi Romanus egit, sed dixit se ex illa die qua in potestatem Carthaginiensium venisset, Romanum esse desivisse. itaque et uxorem a complexu removit et Romanis persuasit ne pax cum Carthaginiensibus fieret: dixit enim illos tot malis fessos spem nullam habere; se tanti pretii non esse ut tot milia captivorum propter unum senem Romanum et paucos, qui ex Romanis capti erant, redderentur. itaque vicit; nam senatus Carthaginienses pacem petentes non admisit; Regulus ipse Carthaginem rediit, rogantibusque Romanis ut eum Romae tenerent; negavit tamen se in ea urbe mansurum esse in qua, postquam Carthaginiensibus serviverat, dignitatem honesti civis habere non posset. regressus igitur ad Africam omnibus suppliciis necatus est.

Names

Carthaginienses, ium, pl.	Carthaginians
Regulus, i., m.	Regulus, a leader of the Romans
Africa, ae., f.	Africa

Vocabulary

permutatio, -onis, f.	exchange
potestas, -tatis, f.	power
desino, desinere, desivi	to stop, to cease
complexus, us	embrace
tanti pretii	to be worth so much
nego, negare, negavi	to deny
servio, -ire, servivi	to be in the service of + <i>dat.</i>
supplicium, n.	torture

Answer all questions.

1. What two tasks did the Carthaginians request Regulus to undertake when they sent him to Rome? **[4 marks]**
2. How did Regulus behave when he was brought before the Roman Senate, and what reasoning did he give for his actions? **[4 marks]**
3. What arguments did Regulus use to persuade the Senate not to make peace with the Carthaginians? Provide two specific points. **[3 marks]**
4. What did Regulus say about the worth of his own life compared to the exchange of Roman prisoners? **[4 marks]**
5. How did Regulus show his personal integrity when urged to remain in Rome by the Roman people? **[2 marks]**
6. What justification did Regulus give for refusing to stay in Rome, despite the pleas of the Romans? **[4 marks]**
7. Describe the fate of Regulus when he returned to Carthage. **[2 marks]**
8. In your own words, what does this passage show about Regulus' character? Discuss two qualities he exhibits and why these qualities might be important to the Romans. **[2 marks]**

[25 marks]

Section C: Grammar and Composition

Carthaginienses Regulum ducem Romanum, quem ceperant, petierunt ut Romam proficisceretur et pacem a Romanis obtineret ac permutationem captivorum faceret. ille Romam cum venisset, ductus in senatum nihil quasi Romanus egit, sed dixit se ex illa die qua in potestatem Carthaginiensium venisset, Romanum esse desivisse. itaque et uxorem a complexu removit et Romanis persuasit ne pax cum Carthaginiensibus fieret: dixit enim illos tot malis fessos spem nullam habere; se tanti pretii non esse ut tot milia captivorum propter unum senem Romanum et paucos, qui ex Romanis capti erant, redderentur. itaque vicit; nam senatus Carthaginienses pacem petentes non admisit; Regulus ipse Carthaginem rediit, rogantibusque Romanis ut eum Romae tenerent; negavit tamen se in ea urbe mansurum esse in qua, postquam Carthaginiensibus serviverat, dignitatem honesti civis habere non posset. regressus igitur ad Africam omnibus suppliciis necatus est.

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

1. *Carthaginienses* (line 1): what case is this word in? [1 mark]
2. *ut Romam proficisceretur*: (line 2): *proficisceretur* is in the subjunctive mood. Why? [1 mark]
3. *venisset* (line 3): what tense is this verb in? [1 mark]
4. *senatum* (line 3): what case is this noun in and why? [2 marks]
5. *dixit se esse desivisse* (line 3-4): what case is *se* in and why? [2 marks]
6. *ne fieret* (line 5): *fieret* is in the subjunctive. Why? [1 mark]
7. *vicit* (line 7): what is the first person single present form of this verb? [1 mark]
8. *milia* (line 6): what number and case is *milia*? [2 marks]
9. *Romae* (line 9): what case is this noun in? [1 mark]
10. *omnibus suppliciis* (line 11): what case are these words in? [1 mark]
11. *necatus est* (11): what tense and voice is this verb in? [2 marks]

[15 marks]

Translation

Translate the following sentences into Latin.

1. The boy sees the horses in the field. [3]
2. The messenger ran quickly to the city. [4]
3. The general sent the men to the city in order to buy food. [4]
4. The enemy were fleeing from the city at night. [4]

[15 marks]

Surname:	First name:
Current School:	



HARROW SCHOOL

MATHEMATICS PAPER 1 SCHOLARSHIP EXAMINATION 2025

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 the following without using the calculator, showing all steps clearly.

$$7\frac{1}{5} - 3\frac{5}{6} =$$

..... (2)

- (b) Solve the following without using the calculator, showing all steps clearly.

$$2\frac{1}{5} + 3\frac{1}{2} \div 1\frac{3}{4}$$

..... (3)

2. (a) Express as a single fraction

$$\frac{2a}{3} - \frac{3a}{2}$$

..... (2)

(b) Express as a single fraction

$$\frac{b+1}{2} - \frac{b-2}{4}$$

..... (2)

(c) Express as a single fraction

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

..... (3)

3. (a) Factorise $36mn - 24n$

..... (1)

(b) Factorise fully $20n^2 - 5n$

..... (1)

(c) Factorise fully $15m^3n^2 - 45m^2n^3$

..... (2)

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

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

(b) Solve $(b - 2) + b^2 = b - b(3 - b)$

$b = \dots\dots\dots$ **(3)**

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

$c = \dots\dots\dots$ **(3)**

(d) Solve for the values of d if

$$\frac{5}{2}(d - 1)^2 = \frac{2}{5}$$

$d = \dots\dots\dots$ **(3)**

5. (a) Make m the subject of
 $a = 3 - 2m$

$$m = \dots\dots\dots (2)$$

- (b) Make m the subject of
 $a = \frac{3}{m} - 2b$

$$m = \dots\dots\dots (3)$$

- (c) Make m the subject of
 $S = \frac{1}{2}(m + n)t$

$$m = \dots\dots\dots (4)$$

- (d) Make m the subject of
 $2m + d - 3 = 3d - 2(1 - 3m)$

$$m = \dots\dots\dots (4)$$

6. Given that $m = n^2 - 2ay$

- (a) Evaluate m , giving your answer to one decimal place, if $n = -3$, $a = 9.8$ and $y = -3$.

$$m = \dots\dots\dots (2)$$

- (b) Evaluate y , giving your answer to two significant values, if $m = 12$, $n = 2$, and $a = 9.8$.

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

- (c) Find the exact values of n , if $m = -3$, $a = 13$ and $y = 2$.

$$n = \dots\dots\dots (4)$$

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

$$\frac{16 - 4 \times 3}{6 \div 3 \times 2}$$

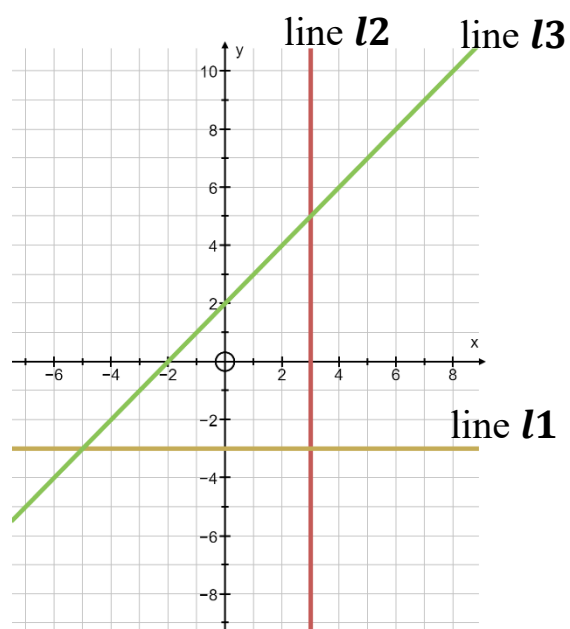
..... (3)

- (b) Evaluate

$$7 - 3 \div (5 - 2) \times 2^2 + 5$$

..... (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. The result of doubling a certain number and adding 17 is the same as trebling (multiplying by 3) that number and adding 4. What is the number?
You must show algebraic working. Solutions by trial and error will gain no mark.

Hint: *Let the number = x .*

..... (4)

10. The sum of three consecutive odd numbers is 225. What are the numbers?
You must show algebraic working. Solutions by trial and error will gain no mark.

..... (4)

11. Given that

$$m \Delta n = (m + n)(m - n)$$

- (a) Evaluate $5 \Delta 3$.

..... (1)

- (b) I am thinking of two integers, x and y . If the sum of these integers is 15 and their difference is 1, write down the value of $x \Delta y$.

..... (1)

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

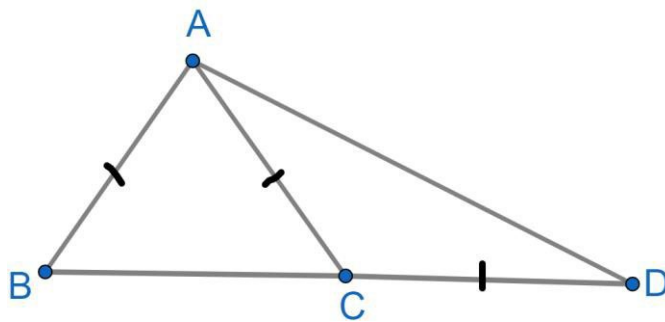
$x =$ (1)

$y =$ (1)

12. Johnny took several History tests. One of his scores was recorded as 75 marks, while his average score was 80 marks. Later, he discovered that the score of 75 marks had been entered incorrectly, and the correct score was 87 marks. After updating his records, his average score increased to 82 marks. How many tests did Johnny take?

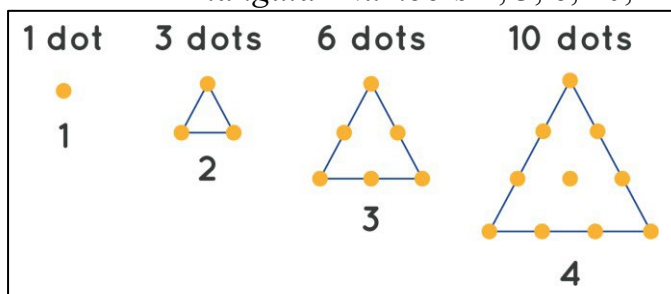
No of tests = ... (4)

13. Triangles ABC and ACD are isosceles triangles. Given that $AB = AC = CD$ and that the difference between $\angle BAD$ and $\angle ADB$ is 56° , find $\angle CAD$.



$\angle CAD = \dots\dots\dots$ (4)

14. The **Triangular Number Sequence** is the representation of the numbers in the form of equilateral triangle arranged in a series or sequence. The pattern below shows the first four *Triangular Numbers* 1, 3, 6, 10, ...



(a) In the space below draw Pattern 5

(1)

(b) Write down the fifth (from Pattern 5) triangular number.

..... (1)

(c) James says, “when I add consecutive triangular numbers, I get another kind of special number”, what kind of number does James get?

..... (1)

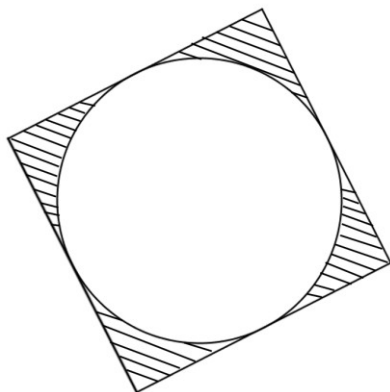
(d) Write the sixth triangular number as the sum of a series of consecutive integers.

..... (1)

(e) Write down the largest triangular number that is less than 100.

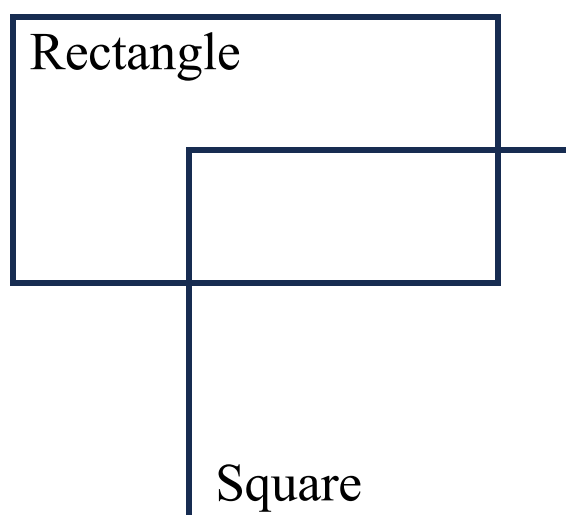
..... (1)

15. In the diagram below, a circle is inscribed in a square. Show that the ratio of area of the shaded region to the area of the square is $m:n$ where m, n are integers to be determined.
(Take $\pi = \frac{22}{7}$)



$$m = \dots\dots\dots, n = \dots\dots\dots \text{ (5)}$$

16. The diagram below shows a rectangle and a square that overlaps. The area of the overlap is $\frac{2}{5}$ of the square's area and $\frac{3}{7}$ of the rectangle's area. Given that the area of the part of the rectangle not overlapped is 276 cm^2 , find the area of the square.



$$\text{Area of square} = \dots\dots\dots \text{ (5)}$$

17. Eugene and Eric are driving towards the same finish line. Eugene started his journey at 7.30am, driving at an average speed of 60km/h. Eric, who arrived late, started at 8.30am, driving the same route at an average speed of 80km/h. After overtaking Eugene, Eric travelled an additional 60km to reach the finish line. How far was Eugene from the finish line when Eric arrived?

..... (5)

End of Paper



HARROW SCHOOL

Scholarship Examination 2025

Mathematics II

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. Note that $2025 = 45^2$. Using this result, solve the following questions:

a. Calculate:

i. $\sqrt{0.2025}$

ii. $2025 \div 900$

iii. 13500×15000

b. Express 2025^3 as a product of prime factors

c. Cheng is facing due North. He turns 2025° clockwise. In which direction is he now facing?

NB if you calculate these values without using the given result, you will earn comparatively few marks

2. There are 100 witches in a coven. 65 of them have a pet cat, 75 ride a broomstick and 85 have a crooked nose.

a. Find the largest possible number of witches who satisfy all three of the attributes above (i.e. they have a pet cat, ride a broomstick *and* have a crooked nose). Justify how you know your answer is the largest possible number.

b. Find the *smallest* possible number of witches who satisfy all three of the attributes above. Justify how you know your answer is the smallest possible number.

c. Find the largest and smallest possible numbers of witches that could satisfy *exactly two* of the three attributes above. Justify how you know your answers are correct.

3. Solve the following pair of simultaneous equations:

$$\begin{cases} 5a - 4b = 10 \\ 9a + 6b = 29 \end{cases}$$

Hence find the solutions to:

a.
$$\begin{cases} 5p + 4q = 10 \\ 9p - 6q = 29 \end{cases}$$

b.
$$\begin{cases} \frac{5}{s} - \frac{4}{r} = 10 \\ \frac{9}{s} + \frac{6}{r} = 29 \end{cases}$$

c.
$$\begin{cases} 5x - 4y + 8z = 10 \\ 9x + 6y - 12z = 29 \\ 3y + 6z = 4 \end{cases}$$

4. You are given that an adult human's lungs have a capacity of 6 litres.

Stating any assumptions you make, find an **estimate**, in metres and to one significant figure, for the diameter of a balloon which is filled with all the air you will breathe in your lifetime.

You may use the formula for the volume, V , of a sphere with radius r : $V = \frac{4}{3}\pi r^3$.

5. Show algebraically that $\frac{1}{n} - \frac{1}{n+1}$ is equal to $\frac{1}{n(n+1)}$.

Using this result, or otherwise, work out the following:

a. Simplify fully $\frac{1}{500} - \frac{1}{501}$

b. Simplify fully $\frac{3}{40} - \frac{2}{27}$

c. Write $\frac{1}{110}$ in the form $\frac{1}{a} - \frac{1}{b}$

d. Hence simplify fully $\frac{1}{90} + \frac{1}{110}$

e. Simplify fully $\frac{1}{20} + \frac{1}{30} + \frac{1}{42}$

Eddie is thinking about the sum which starts $\frac{1}{2} + \frac{1}{6} + \frac{1}{12} + \frac{1}{20} + \dots$, where every term is of the form $\frac{1}{k(k+1)}$ and k increases by 1 from each term to the next.

- f. What is the sum of the first 10 terms in this sum?
- g. What is the sum of the first 100 terms in this sum?
- h. What happens if this sum is continued for ever?

6. Ali is a decorator. He can mix red paint and white paint to make pink paint. He makes four types of pink paint:

dark pink, made by mixing red and white paint in the ratio 1 : 3,

plain pink, made by mixing red and white paint in the ratio 1 : 5,

pale pink, made by mixing red and white paint in the ratio 1 : 6, and

light pink, made by mixing red and white paint in the ratio 1 : 8.

- a. He wants to mix some plain pink, but he only has dark pink and light pink paint available. In what ratio should he mix them?

Ali's apprentice, Dopey Dave, wants to mix some pale pink, but he uses the wrong colours – he uses dark pink instead of red and light pink instead of white (in the correct ratio), making a colour called *murky pink*.

Ali wishes to correct the murky pink to pale pink, but only has dark pink and light pink available.

- b. Which colour should he mix with murky pink, and in what ratio?

7. A puzzle challenges the solver to find the set of whole numbers which add up to 300 and multiply to the largest possible product. Bilal has solved this puzzle and has a list of numbers in front of him.

- a. Explain why there cannot be any 1s in Bilal's set of numbers.

Bilal says "if I have a 4 in my list, I will replace it with two 2s."

- b. Explain why this won't affect either the sum or the product of the numbers in his list.
- c. Let N represent a number with $N \geq 5$. Which is larger, N or $2 \times (N - 2)$?
- d. Explain why the result from part (c) means that Bilal's list cannot contain any numbers greater than 4.
- e. By thinking about numbers which sum to 6, determine whether Bilal would prefer to have 2s or 3s in his list.
- f. Drawing together parts (a), (d) and (e), write down the contents of Bilal's list.

8. In the addition sum below, each letter represents a different digit (and H and M aren't 0). Find all possible ways to assign a digit to each letter so that the sum is correct.

$$\begin{array}{r} \text{MATHS} \\ + \text{MATHS} \\ \hline \text{HARROW} \end{array}$$

Remember you must explain all your steps and justify how you know you have found all the solutions.

There are no questions printed on this page.



HARROW SCHOOL

Philosophy and Applied Ethics Scholarship Examination 2025

75 minutes

*You have 30 minutes to read through the first six pages
of The Terminally Ill Adults (End of Life) Bill 2024–25
published on 11 November 2024.*

*You then 45 minutes to answer the question.
Do take time to plan and draft your answer.*

Use blue or black ink for text.

[AS INTRODUCED]

A

B I L L

TO

Allow adults who are terminally ill, subject to safeguards and protections, to request and be provided with assistance to end their own life; and for connected purposes.

BE IT ENACTED by the King’s most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:—

Eligibility to be provided with lawful assistance to voluntarily end own life

1 Assisted dying

- (1) A terminally ill person who—
 - (a) has the capacity to make a decision to end their own life (see section 3), 5
 - (b) is aged 18 or over at the time the person makes a first declaration (see section 5),
 - (c) is ordinarily resident in England and Wales and has been so resident for at least 12 months ending with the date of the first declaration, and 10
 - (d) is registered as a patient with a general medical practice in England or Wales,
 may, on request, be provided with assistance to end their own life in accordance with sections 5 to 22.
- (2) Sections 5 to 22, in particular, require steps to be taken to establish that the person— 15
 - (a) has a clear, settled and informed wish to end their own life, and
 - (b) has made the decision that they wish to end their own life voluntarily and has not been coerced or pressured by any other person into making it. 20

2 Terminal illness

- (1) For the purposes of this Act, a person is terminally ill if—
 - (a) the person has an inevitably progressive illness, disease or medical condition which cannot be reversed by treatment, and

- (b) the person's death in consequence of that illness, disease or medical condition can reasonably be expected within 6 months.
- (2) For the purposes of subsection (1), treatment which only relieves the symptoms of an inevitably progressive illness, disease or medical condition temporarily is not to be regarded as treatment which can reverse that illness, disease or condition. 5
- (3) For the avoidance of doubt, a person is not to be considered to be terminally ill by reason only of the person having one or both of—
 - (a) a mental disorder, within the meaning of the Mental Health Act 1983;
 - (b) a disability, within the meaning of section 6 of the Equality Act 2010. 10

3 Capacity

In this Act, references to a person having capacity are to be read in accordance with the Mental Capacity Act 2005.

Initial discussions

- ### 4 Initial discussions with registered medical practitioners 15
- (1) No registered medical practitioner is under any duty to raise the subject of the provision of assistance in accordance with this Act with a person.
 - (2) But nothing in subsection (1) prevents a registered medical practitioner exercising their professional judgement to decide if, and when, it is appropriate to discuss the matter with a person. 20
 - (3) Where a person indicates to a registered medical practitioner their wish to seek assistance to end their own life in accordance with this Act, the registered medical practitioner may (but is not required to) conduct a preliminary discussion about the requirements that need to be met for such assistance to be provided. 25
 - (4) If a registered medical practitioner conducts such a preliminary discussion with a person, the practitioner must explain to and discuss with that person—
 - (a) the person's diagnosis and prognosis;
 - (b) any treatment available and the likely effect of it;
 - (c) any available palliative, hospice or other care, including symptom management and psychological support. 30
 - (5) A registered medical practitioner who is unwilling or unable to conduct the preliminary discussion mentioned under subsection (3) must, if requested by the person to do so, refer them to another registered medical practitioner whom the first practitioner believes is willing and able to conduct that discussion. 35

*Procedure, safeguards and protections***5 Initial request for assistance: first declaration**

- (1) A person who wishes to be provided with assistance to end their own life in accordance with this Act must make a declaration to that effect (a “first declaration”). 5
- (2) A first declaration must be—
 - (a) in the form set out in Schedule 1,
 - (b) signed and dated by the person making the declaration, and
 - (c) witnessed by—
 - (i) the coordinating doctor in relation to that person, and 10
 - (ii) another person,both of whom must see the declaration being signed.
- (3) In this Act, “the coordinating doctor” means a registered medical practitioner—
 - (a) who has such training, qualifications and experience as the Secretary of State may specify by regulations, 15
 - (b) who has indicated to the person making the declaration that they are able and willing to carry out the functions under this Act of the coordinating doctor in relation to the person,
 - (c) who is not a relative of the person making the declaration, and
 - (d) who does not know or believe that they— 20
 - (i) are a beneficiary under a will of the person, or
 - (ii) may otherwise benefit financially or in any other material way from the death of the person.
- (4) Before making regulations under subsection (3)(a), the Secretary of State must consult such persons as they consider appropriate. 25
- (5) A person may not witness a first declaration under subsection (2)(c)(ii) if they are disqualified under section 36 from being a witness.
- (6) Regulations under subsection (3)(a) are subject to the negative procedure.

6 Requirement for proof of identity

- (1) This section applies where a person makes a first declaration. 30
- (2) The person must, at the same time as that declaration is made, provide two forms of proof of identity to the coordinating doctor and the witness mentioned in section 5(2)(c)(ii).
- (3) The Secretary of State may, by regulations, make provision about the forms of proof of identity that are acceptable for the purposes of subsection (2). 35
- (4) Regulations under subsection (3) are subject to the negative procedure.

7 First doctor's assessment (coordinating doctor)

- (1) The coordinating doctor must, as soon as reasonably practicable after a first declaration is made by a person, carry out the first assessment.
- (2) "The first assessment" is an assessment to ascertain whether, in the opinion of the coordinating doctor, the person —
 - (a) is terminally ill,
 - (b) has capacity to make the decision to end their own life,
 - (c) was aged 18 or over at the time the first declaration was made,
 - (d) is ordinarily resident in England and Wales and has been so resident for at least 12 months ending with the date of the first declaration,
 - (e) is registered as a patient with a general medical practice in England or Wales,
 - (f) has a clear, settled and informed wish to end their own life, and
 - (g) made the first declaration voluntarily and has not been coerced or pressured by any other person into making it.
- (3) If, having carried out the first assessment, the coordinating doctor is satisfied that the requirements of subsection (2)(a) to (g) are satisfied, the coordinating doctor must —
 - (a) make a statement to that effect in the form set out in Schedule 2, and sign and date it,
 - (b) provide the person who was assessed with a copy of the statement, and
 - (c) refer that person, as soon as practicable, to another registered medical practitioner who meets the requirements of section 8(6) and is able and willing to carry out the second assessment ("the independent doctor").

8 Second doctor's assessment (independent doctor)

- (1) Where a referral is made under section 7(3)(c), the independent doctor must carry out the second assessment of the person as soon as reasonably practicable after the first period for reflection has ended.
- (2) "The second assessment" is an assessment to ascertain whether, in the opinion of the independent doctor, the person who made the first declaration —
 - (a) is terminally ill,
 - (b) has capacity to make the decision to end their own life,
 - (c) was aged 18 years or over at the time the first declaration was made,
 - (d) has a clear, settled and informed wish to end their own life, and
 - (e) made the first declaration voluntarily and has not been coerced or pressured by any other person into making it.
- (3) In subsection (1) "the first period for reflection" means the period of 7 days beginning with the day the coordinating doctor made the statement under section 7(3).

- (4) The independent doctor must carry out the second assessment independently of the coordinating doctor (subject to section 9(4) (sharing of specialists' opinions)).
- (5) If, having carried out the second assessment, the independent doctor is satisfied as to the matters mentioned in subsection (2)(a) to (e), the independent doctor—
 - (a) must make a statement to that effect in the form set out in Schedule 3 and sign and date it, and
 - (b) provide each of the coordinating doctor and the person who was assessed with a copy of the statement.
- (6) A registered medical practitioner may carry out the functions of the independent doctor under this Act only if that practitioner—
 - (a) has such training, qualifications and experience as the Secretary of State may by regulations specify,
 - (b) has not provided treatment or care for the person being assessed in relation to that person's terminal illness,
 - (c) is not a relative of the person being assessed,
 - (d) is not a partner or colleague in the same practice or clinical team as the coordinating doctor,
 - (e) did not witness the first declaration made by the person being assessed, and
 - (f) does not know or believe that they—
 - (i) are a beneficiary under a will of the person, or
 - (ii) may otherwise benefit financially or in any other material way from the death of the person.
- (7) In subsection (6)(b) the reference to "terminal illness" means the illness, disease or medical condition mentioned in section 2(1)(a).
- (8) Before making regulations under subsection (6)(a), the Secretary of State must consult such persons as the Secretary of State considers appropriate.
- (9) Regulations under subsection (6)(a) are subject to the negative procedure.

9 Doctors' assessments: further provision

- (1) In this section "assessing doctor" means—
 - (a) the coordinating doctor carrying out the first assessment;
 - (b) the independent doctor carrying out the second assessment.
- (2) The assessing doctor must—
 - (a) examine the person and their medical records and make such other enquiries as the assessing doctor considers appropriate;
 - (b) explain to and discuss with the person being assessed—
 - (i) the person's diagnosis and prognosis;
 - (ii) any treatment available and the likely effect of it;
 - (iii) any available palliative, hospice or other care, including symptom management and psychological support;

- (iv) the nature of the substance that might be provided to assist the person to end their own life (including how it will bring about death);
 - (c) discuss with the person their wishes in the event of complications arising in connection with the self-administration of an approved substance under section 18; 5
 - (d) inform the person—
 - (i) of the further steps that must be taken before assistance can be provided to the person to end their own life in accordance with this Act; 10
 - (ii) that the person may decide at any time not to take any of those steps (and of how to cancel the first declaration and any of those further steps);
 - (e) advise the person to inform a registered medical practitioner from the person's GP practice that the person is requesting assistance to end their own life (unless the assessing doctor is themselves a practitioner from that practice); 15
 - (f) in so far as the assessing doctor considers it appropriate, advise the person to consider discussing the request with their next of kin and other persons they are close to. 20
- (3) To inform their assessment, the assessing doctor—
- (a) must, if they have doubt as to whether the person being assessed is terminally ill, refer the person for assessment by a registered medical practitioner who holds qualifications in or has experience of the diagnosis and management of the illness, disease or condition in question; 25
 - (b) may, if they have doubt as to the capacity of the person being assessed, refer the person for assessment by a registered medical practitioner who is registered in the specialism of psychiatry in the Specialist Register kept by the General Medical Council or who otherwise holds qualifications in or has experience of the assessment of capability; 30
 - (c) must, if they make a referral under paragraph (a) or (b), take account of any opinion provided by that other registered medical practitioner.
- (4) An opinion provided to one assessing doctor under subsection (3)(a) or (b) must be shared with the other assessing doctor. 35
- (5) Where the independent doctor is required to obtain an opinion under subsection (3)(a) —
- (a) that duty may be discharged by an opinion obtained under that provision by the coordinating doctor, or
 - (b) the independent doctor may make their own referral under that provision. 40

Question:

“Adults who are terminally ill should be provided with assistance to end their own life in the United Kingdom, and this Bill is adequate.”

Evaluate this view.

In your answer you should:

- make references to 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.

This paper was created in December 2024. Remember that the Bill was introduced to the House of Commons on 11 November 2024. If there have been any updates to the Bill and you are aware of these, then you may include these in your answer.



HARROW SCHOOL

13+ Scholarship Science Examination 2025

Name (PRINT):

Section	Score
A	/ 18
B	/ 20
C	/ 22
D	/ 20
Total	/ 80
%	

Instructions

- You have **2 hours** to answer all questions.
- Section A consists of 18 multiple-choice questions. You must select the best answer, A–D, for each question and mark your answers on the separate Multiple Choice Answer Grid provided.
- Sections B, C and D should be answered on the examination paper.
- You should spend approximately 30 minutes on each section.
- Use blue or black ink for text.
- You may use a pencil and a ruler for diagrams.
- You may use a calculator.

The style of the questions and material covered in this paper may feel unfamiliar. However, you should be able to tackle the problems using the knowledge you *do* have together with the information provided.

Section A: Multiple Choice

1.

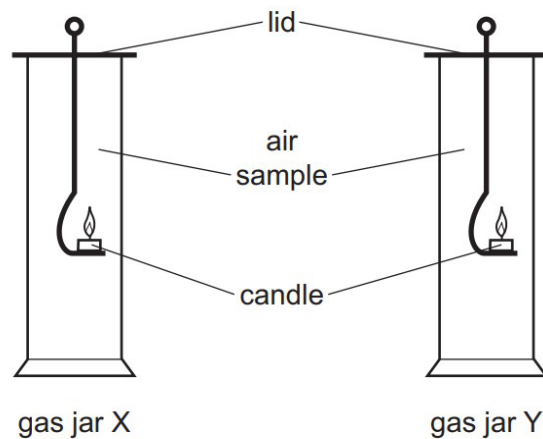
What is the best source of vitamin C in a balanced diet?

- A fish
- B fruit
- C meat
- D rice

2.

A sample of expired air (air that is breathed out) is collected in a gas jar. Another jar contains normal atmospheric air.

A lighted candle is placed inside each gas jar as shown. The time taken for each flame to go out is measured. As the candles burn they use up the oxygen available in the jar.



The table shows the results of this experiment.

gas jar	time for candle flame to go out/s
X	15
Y	9

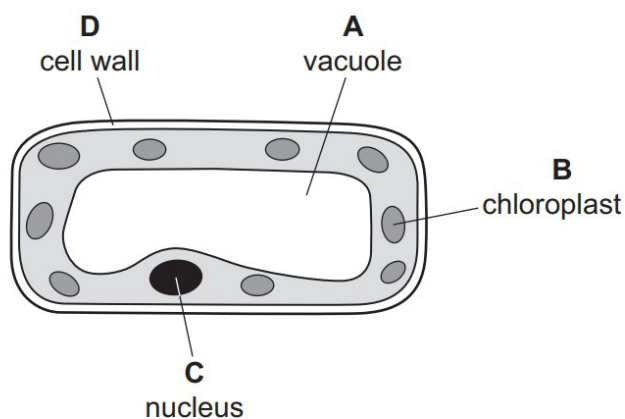
What is an explanation of the difference between the results in jars X and Y?

- A Jar X contains atmospheric air which has more carbon dioxide.
- B Jar X contains expired air which has more carbon dioxide.
- C Jar Y contains atmospheric air which has less oxygen.
- D Jar Y contains expired air which has less oxygen.

3.

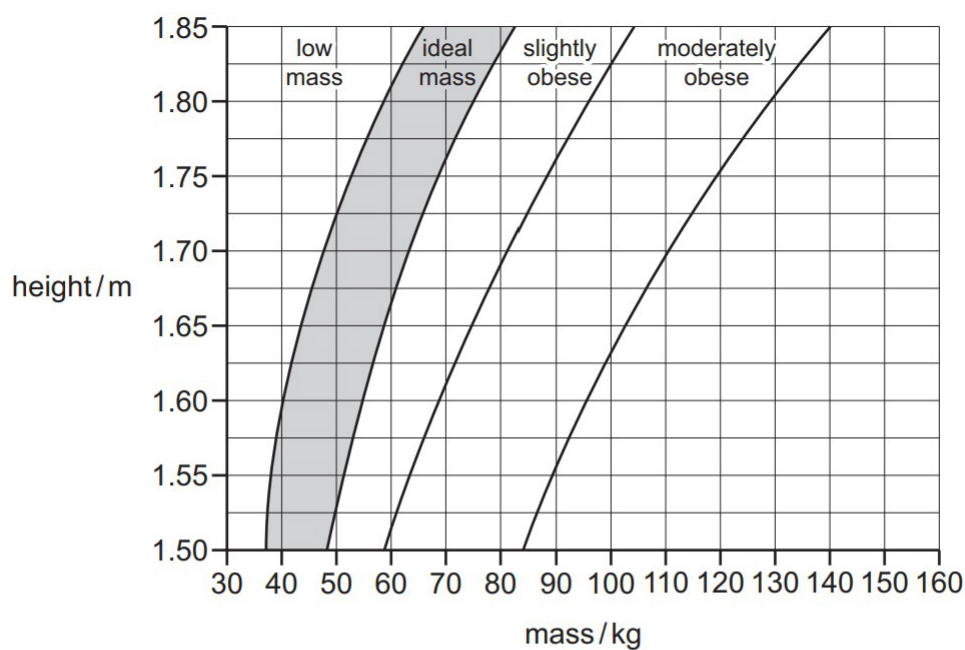
The diagram shows a plant cell.

In which labelled part of the cell is sugar made?



4.

The chart is used to find a person's recommended mass.

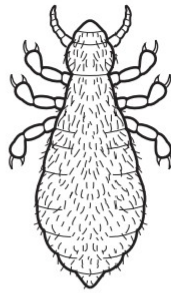


For the data provided about body mass and height, which person would benefit most from the introduction of a calorie-controlled diet and regular exercise?

	body mass /kg	height /m
A	40	1.55
B	50	1.75
C	70	1.80
D	90	1.75

5.

The diagram shows an insect.

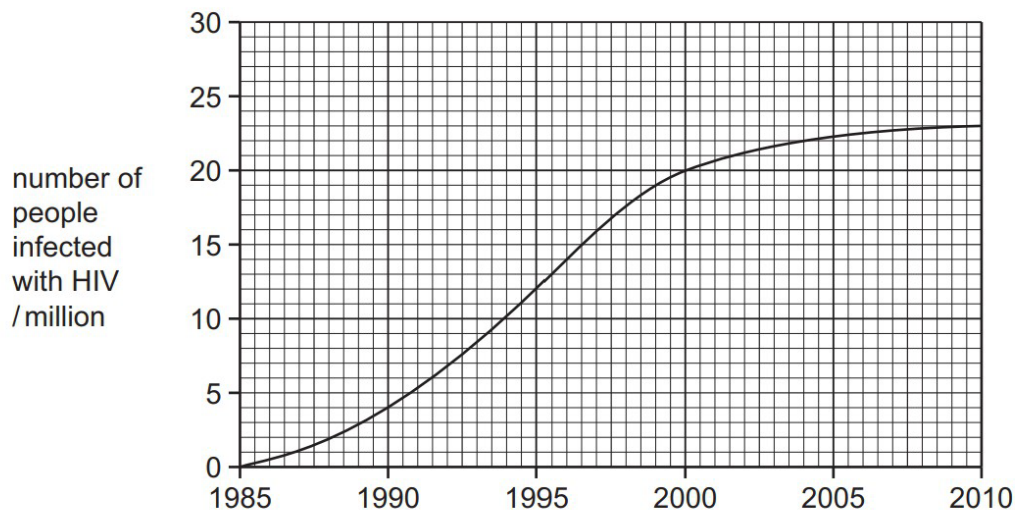


What is the insect?

- 1 insect has no wings go to 2
- insect has wings go to 3
- 2 legs longer than, or as long as the body **A**
- legs shorter than the body **B**
- 3 abdomen long and thin **C**
- abdomen shorter and wider **D**

6.

The graph shows the number of people infected with HIV, in one part of the world, between 1985 and 2010.

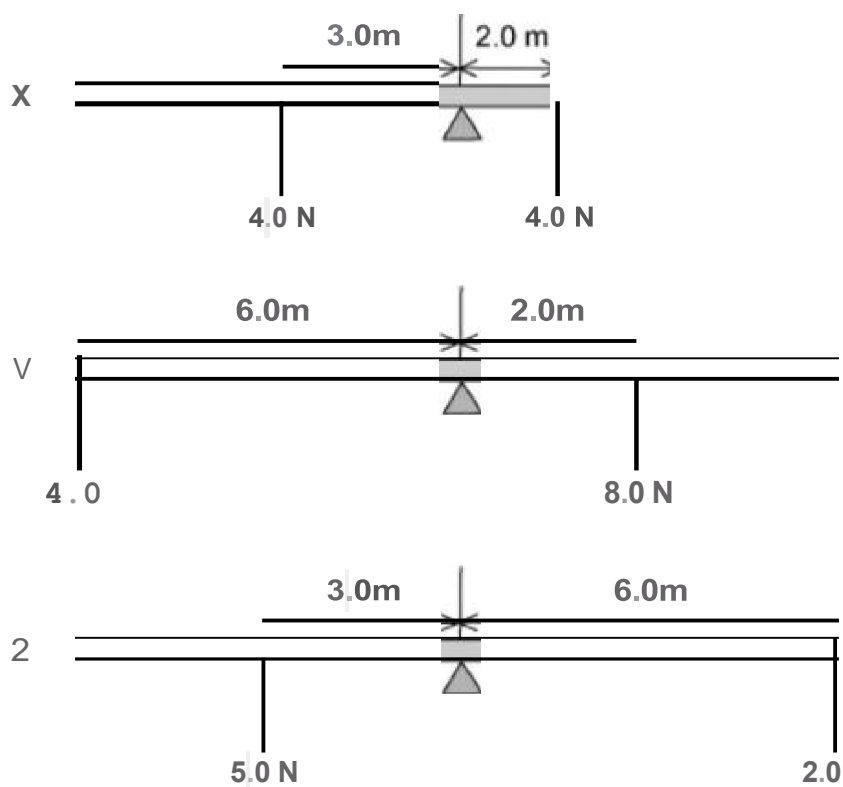


Using data from the graph, which statement is correct?

- A** Between 1995 and 2000 the number of people infected with HIV increased by 67%.
- B** Between 1995 and 2000 the number of people infected with HIV increased by 20%.
- C** Between 1990 and 1995 the number of people infected with HIV doubled.
- D** Between 1995 and 2000 the number of people infected with HIV doubled.

7.

The diagrams below show three beams, each is pivoted at the centre. Each beam also has two forces acting on it, as shown.



Which of the beams will rotate clockwise?

- A. X, Y and Z
- B. X and Y
- C. Y and Z
- D. None

8.

The law of conservation of energy states that energy cannot be created or destroyed, it can only be transferred from one store to another.

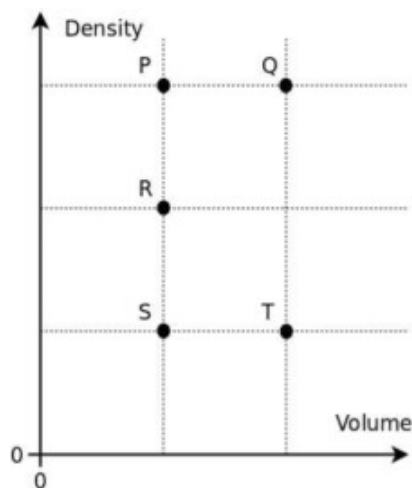
Which of the following statements is true?

- A. The useful energy and wasted energy transferred away from a system will be equal to the total energy transferred to the system.
- B. The useful energy of a system will be equal to the wasted energy of a system.
- C. The total energy transferred to a system will be equal to the useful energy transferred away from a system.
- D. The total energy transferred to a system will be equal to the wasted energy transferred away from a system.

9.

The graph below shows the volume and density of several different objects. The two objects that have the same mass are:

- A. P & Q
- B. P & S
- C. R & Q
- D. R & T



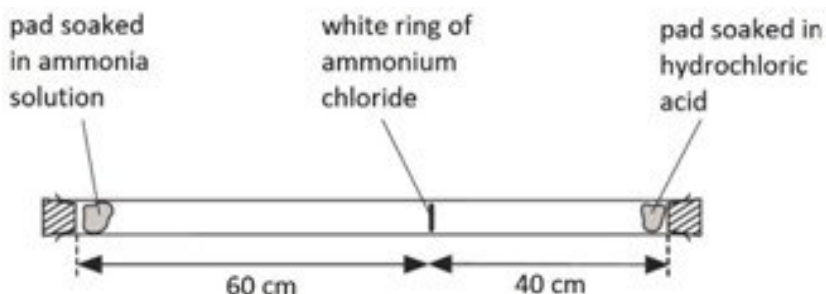
10.

A swimmer dives into a completely calm 25m long swimming pool. The ripple from the dive travels across the surface of the pool at 2.5m/s, reflects off the far end and travels back down the pool to meet the swimmer. After diving in at the end, the swimmer swims at a steady speed that would take him 20 seconds to swim the length of the pool. The swimmer and the returning ripple meet when the swimmer has travelled approximately:

- A. 10m
- B. 12.5m
- C. 17m
- D. 20m

The following information is relevant for questions 11, 12 and 13

A student set up a one metre tube with a saturated cotton wool pad at each end. Colourless vapours travelled from the pad and met in the tube to form a white solid.



11.

What causes the vapours to move through the tube towards each other?

- A. The substances behave as an acid and base so are attracted towards each other.
- B. A draught through the tube. It is not possible for the bung to perfectly seal the tube. This causes movement of air particles.
- C. Brownian Motion
- D. Diffusion

12.

The white ring forms closer to the hydrogen chloride end. This is because:

- A. Ammonia particles move more slowly.
- B. Hydrogen chloride particles are heavier than ammonia particles.
- C. Both gases diffuse at the same rate but meet where temperatures are equal.
- D. Hydrogen chloride particles move faster than ammonia particles.

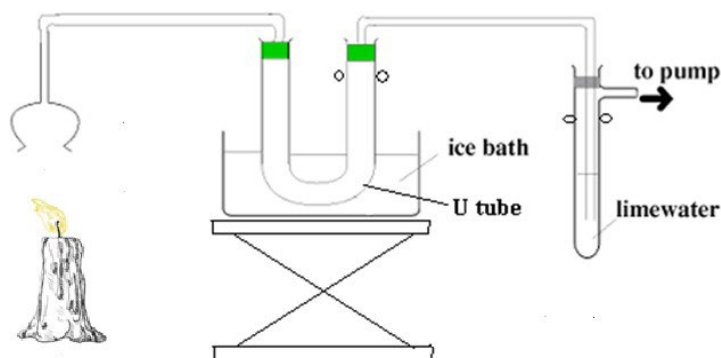
13.

The student wondered if temperature would influence the observation. Make a sensible suggestion; if the laboratory and equipment were warmer:

- A. The white ring would form in the same position but would do so more quickly.
- B. No change in the observation would be expected.
- C. The white ring would form more quickly and further to the right side of the tube as shown above.
- D. The white ring would take longer to form and would do so further to the left of the tube.

The following information is relevant for questions 14, 15 and 16

The vapours from a burning candle are collected.



14.

Select the correct statement about the melting and the burning of the candle.

- A. Both are chemical changes.
- B. Melting is a physical change, and burning is a chemical change.
- C. Melting is a chemical change, and burning is a physical change.
- D. Both are physical changes.

15.

Identify the observations you would expect in the limewater tube.

- A. A small amount of white solid powder would start to form as a sediment, distributed evenly through the limewater solution. After bubbling for another minute, this solid started to redissolve to make the limewater clear again.
- B. The limewater turned blue.
- C. The limewater turned red.
- D. No change was observed, despite bubbling for several minutes.

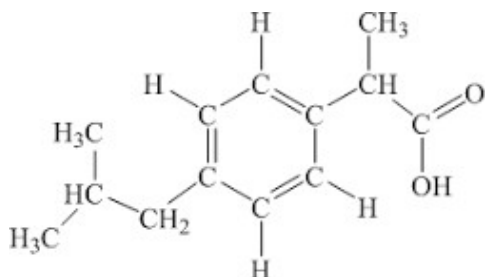
16.

Some powdered anhydrous cobalt chloride was placed in the U-tube. The colour change expected would be:

	before...	after...
A.	blue	blue (i.e. no change)
B.	blue	pink
C.	pink	blue
D.	pink	pink (i.e. no change)

17.

Ibuprofen is used as a common painkiller and anti-inflammatory; the active ingredient in Nurofen. What is the chemical formula of its molecule, shown here?



- A. $C_{12}H_{18}O_2$
- B. $C_{12}H_{16}O_2$
- C. $C_{13}H_{17}O_2$
- D. $C_{13}H_{18}O_2$

18.

A student uses chromatography to separate colours in a marker. The blue dye travels further up the paper than the red dye. What could explain this observation?

- A. The blue dye is more soluble in the solvent used.
- B. The red dye is heavier than the blue dye.
- C. The red dye is more 'sticky' to the paper.
- D. Both A and C.

[Total: 18]

Section B: Problem Solving

This year the new Biology and Chemistry building was opened at Harrow School. A bespoke building with 16 laboratories and a lecture theatre, the main façade is mostly windows, allowing for lots of natural light and open views.



Fig 1: Harrow's bespoke new Biology and Chemistry building



Fig 2: A quartz crystal

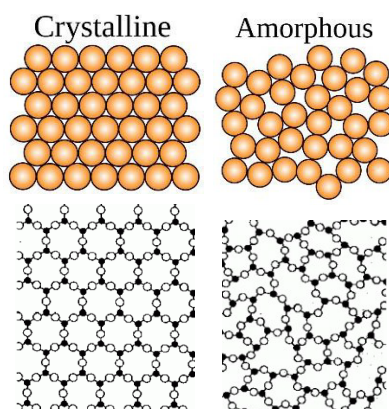
The main ingredients of glass are sand, limestone and soda ash. Scrap crushed glass, called cullet, is also added to the mixture. They are all heated together in a furnace to over 1500°C . Sand (i.e. silicon dioxide) is a bright white solid quartz crystal.

1. Describe the arrangement of particles in a solid.

(1)

.....

.....



The crystalline solid is a dense bright white. For glass to be transparent, the arrangement of solid particles must be disrupted – disordered. This is called an ‘amorphous’ arrangement.

2. In words, explain why the arrangement of particles is similar to a liquid, even though glass cannot be classed as a liquid.

(1)

.....

.....

Several substances, such as rubber and plastics, have what is termed a “glass transition” temperature. This is a temperature cooler than the melting point when the solid changes from being hard, brittle, would snap into a more bendy, ductile type of solid.

3. Make a sensible suggestion why this temperature must be very high for glass.

(1)

.....

Temperature measures particle speed of a substance.

As temperature increases, particles move faster (with more kinetic energy).

When a substance changes state the temperature remains constant.

4. Suggest why temperature remains constant when a substance changes state, even though the material is given more heat energy.

(1)

.....

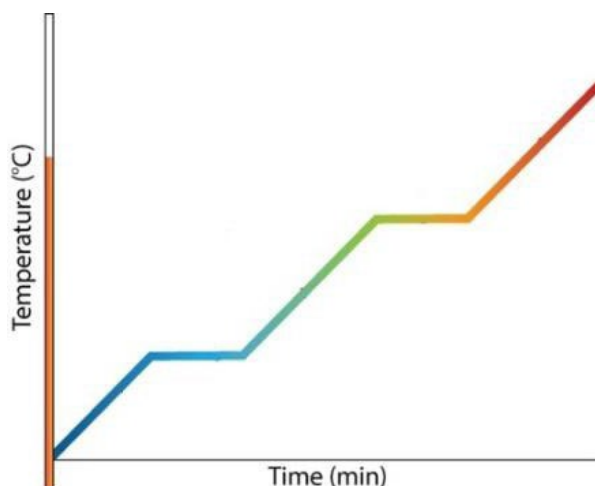
5. Annotate the diagram below to indicate:

i. the sections that represent the three states of matter

(2)

ii. the two state changes represented here

(2)



Related 'bad science' in fiction...

In the classic film 'The Wizard of Oz', Dorothy pours a bucket of water over the Wicked Witch of the West.

The witch then dies screaming "*I'm melting, melting*".

The original novel describes her "*melting away like brown sugar leaving no remains*".

Neither version is scientifically correct: a solid only melts when heated!



6. What is the most likely chemical process when excess water is added to a soluble solid (not normally possible for human bodies!!)

(1)

.....

7. If melted butter were continued to be heated, what is the next chemical change that is most likely (as long as it is exposed to air)?

(1)

.....

When the glass-making mixture is heated in the furnace, the limestone will thermally decompose.

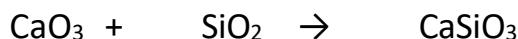
8. Complete these equations to represent this reaction

(2)

calcium carbonate → _____ + carbon dioxide

$\text{CaCO}_3 \rightarrow \text{CaO} + \text{_____}$

CaO is a **base**. It reacts with sand (silicon dioxide) which has **acidic** properties.



9. State what type of reaction this is (even though it does not look like most common examples of this type of reaction you will have met previously).

(1)

.....

Recycled glass (cullet) in the glass mixture improves sustainability.
In window glass, around 30% of the furnace content is cullet.
Cheaper glass items e.g. drinks bottles, might use up to 80% cullet.

10. Suggest why disposing of glass in landfill does not destroy it – cannot get rid of it.

(1)



.....

11. Other than the cost of heating the furnace, suggest at least one other energy cost that must be considered for recycling glass.

(1)

.....

Society must promote recycling as worthwhile because:

- it is less polluting.
- less energy is used to recycle than to make it new.

But companies are often tempted not to recycle because ingredients are cheap.

Milk delivered directly to the doorstep relies on an alternative to recycling: collect, wash and refill. This table compares energy costs in the factory for returnable and non-returnable bottles.

Energy needed (MJ)	returnable	non-returnable
to make bottle	7.5	4.7
to wash & fill bottle	2.6	n/a

12. Suggest why more energy is needed to make a returnable bottle.

(1)

.....

13. MJ stands for Megajoules i.e. one million joules. Determine the amount of energy used to wash and fill four returnable bottles. Express this amount in Joules and write the number showing all of its digits.

(1)

14. Compare the energy required for the equivalent of using two bottles ie calculate the energy needed:

(1)

➤ to make & wash a returnable bottle

.....MJ

➤ to make two non-returnable bottles

.....MJ

15. Calculate the minimum number of times you would need to wash & refill a returnable bottle to make it a cheaper option. Clearly show your working for both marks.

(2)

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[Total: 20]

Section C: Data Analysis

A group of students observed sycamore seeds falling from a tree and decided to investigate their motion.

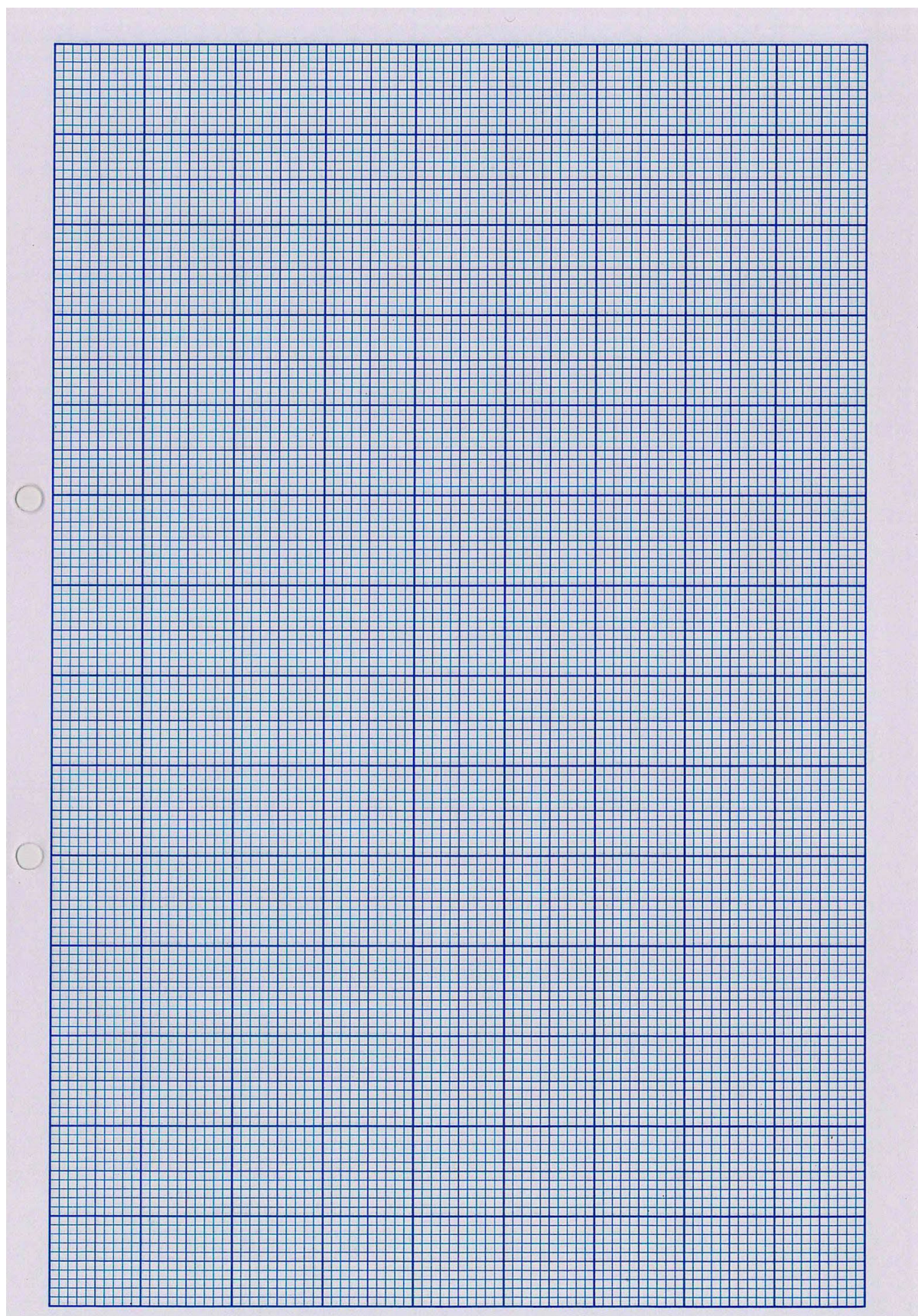


Picture: A sycamore seed. Image credit: Wikimedia

The students collected data for the distance travelled by a seed as it fell vertically down from the tree and the time it took for different parts of its fall. Some of the data is shown in the table below. The distance column shows the distance travelled in each interval of time, and not the total distance travelled from the start.

Table showing the variation in distance travelled and speed for different time intervals of a falling sycamore seed.		
Time / ms	Distance /cm	Speed / cm/s
0	0.00	0
50	2.40	48
100	3.30	66
150	4.75	95
200	4.50	90
250	5.00	100
300	5.20	104
350	5.40	108
400	5.50	110
450	5.70	114
500	5.80	116
550	5.90	118
600	6.00	120
700	12.20	122
800	12.10	121
900	12.30	123
1000	12.20	122

Use the data in the table above together with your knowledge of physics to answer the questions that follow. There is a sheet of graph paper (below) before the questions begin so turn past that for the questions.



1. The time column is given in units of 'milli-seconds' (ms). Just as 1 milli-metre (1mm) is one thousandth of a metre, 1 milli-second is one thousandth of a second. At what time, in seconds, has the seed reached a speed of 118cm/s? (1)

.....

2. Use the graph paper to plot a graph of speed (on the shorter side of the paper) vs time (on the longer side of the paper). Ensure that your graph displays the data as clearly as possible. (3)

3. Looking at the graph you have plotted, identify the anomalous point (that is, the point which does not fit the trend). Give the time at which the anomaly occurs below (including units) and circle the point on your graph. (1)

.....

4. On the graph, draw a 'line of best fit' for the data. A line of best fit is a line that best shows the trend of the data and could be straight, curved or both, depending on the trend. You should ignore the anomalous point. (1)

5. Using your graph, determine the actual speed the seed would have been travelling when the time is equal to the value you determined in question 3. Show your working using the graph and include appropriate units with your answer. (2)

.....

6. Fully describe the relationship shown by the graph, referring carefully to the quantities involved. Use data from the graph to help you.

(3)

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7. Using your understanding of the laws of physics, **why** do you think the sycamore seed would behave as you have said in question 6?

(2)

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.....

.....

8. The distance column shows the distance travelled in each interval of time. So, for example, from 0ms to 50ms the seed travels 2.40cm and from 50ms to 100ms it travels 3.30cm. How far does the seed travel, in metres, between 800ms and 900ms?

(1)

.....

9. The speed column shows the speed of travel between the previous point in time and the current one, in cm/s. So, for example, between the start (0ms) and 50ms the seed is falling at a speed of 48cm/s. Between 50ms and 100ms it is falling at a speed of 66cm/s etc.

Using the formula that connects speed, distance and time, along with data in the distance column, **show** that the speed of the seed between 900ms and 1000ms is 122cm/s.

(2)

.....

.....

10. The table below shows most of the rest of the students' data, following straight on from the previous table. Calculate the relevant speed for the final time interval and enter it into the table below.

(1)

Table showing the variation in distance travelled for later time intervals of a falling sycamore seed.		
Time /ms	Distance /cm	Speed / cm/s
2000	121.00	121
3000	122.00	122
4000	121.00	121
4500	61.00	

11. Objects falling through the air usually end up reaching a constant ‘terminal’ speed. Determine, to the nearest cm/s, the best value suggested by the data in the question for the terminal speed of the sycamore seed.

(2)

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.....

12. How far, to the nearest cm, has the sycamore seed fallen in 4500 ms?

(2)

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13. Suggest a suitable measuring instrument to measure the distance you have determined in question 12.

(1)

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[Total: 22]

Section D: Comprehension and Experimental Design

Corals are tiny invertebrates that live in the sea. They have soft, sac-like bodies with an opening surrounded by tentacles, which they use to catch plankton in the water. However, the corals obtain most of their food from photosynthesising algae that live inside their bodies.



Some corals produce a hard external skeleton made from calcium carbonate. Colonies of these corals can build large rocky structures called coral reefs. Coral reefs thrive in shallow, clear, moving water.

The largest coral reef in the world is the Great Barrier Reef off the north-east coast of Australia. It covers an area of 348,700km². It supports an incredible diversity of life including turtles, seas snakes and over 1500 species of fish. More than 2 million people a year visit the reef to see the wildlife and to catch fish.

The Great Barrier Reef faces numerous threats. A higher level of carbon dioxide in the atmosphere has caused the sea to warm and become more acidic. In response to higher temperatures, corals expel the algae living inside their bodies causing them to lose their pigments. This is called coral bleaching. The more acidic water can break down the calcium carbonate that makes up the coral skeletons.

Pollution caused by run-off from agriculture and mining has also damaged the reef. Minerals in this pollution boost the growth of phytoplankton which is eaten by the larvae of the crown-of-thorns starfish. The adult starfish feed on coral. In 2000, an outbreak of crown-of-thorns starfish caused a 66% loss of live coral cover on reefs investigated by scientists.

Scientists are hopeful that the Great Barrier Reef is capable of recovery but fear it may not be able to if sea temperatures continue to rise. The Australian Government has published recommendations in a long-term sustainability plan for the reef.

1. What is an invertebrate? (1)

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2. Name a type of rock formed from calcium carbonate. (1)

.....

3. Explain why corals grow best in shallow, clear water. (2)

.....

.....

.....

4. Suggest why corals grow best in moving water. (2)

.....

.....

.....

5. If the area of the UK is 243,610km², calculate how many times bigger the Great Barrier Reef is than the UK. Give your answer to 3 significant figures. (2)

Answer:

6. Suggest two impacts of bleaching on the coral reef ecosystem. (2)

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7. Describe a method that scientists could use to estimate the percentage of corals that are bleached on a section of coral reef. (4)

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8. Suggest **three** steps the Australian Government should take to conserve the Great Barrier Reef? (3)

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9. Give **three** different reasons why the Great Barrier Reef should be conserved. (3)

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[Total: 20]



HARROW SCHOOL

Harrow School 13+ Spanish Scholarship Exam 2025

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

Read the text below and answer the questions that follow.

Chupa Chups, el exitoso caramelo con un palito

Los caramelos suelen ser bastante pringosos. Y más si los niños andan metiéndoselos y sacándoselos de la boca para hablar con sus amigos, para ocultarlos de sus padres o para guardarlos en el bolsillo para después. De la observación cotidiana de estas situaciones nació una gran idea, la de añadir al dulce un simple palo. Una pequeña invención que se le ocurrió a Enric Bernat en 1958. Veían así la luz los Chupa Chups. Tanta ha sido su fama que el nombre de la marca se ha convertido en el genérico para referirse a este dulce.

Este no fue, sin embargo, su primer nombre. Su creador Enric Bernat los bautizó inicialmente como Gol. Luego, paso a llamarlos Chups.

Una pegadiza cancioncilla, difundida en las radios de toda España, el medio más potente de publicidad en la época tuvo la culpa del rebautizo: “Chupa un dulce caramelo, chupa chupa chupa un chups. Que es redondo y dura mucho, chupa chupa chupa un chups. Un palito lo sostiene, para no mancharte tú. Si quieres llenar tu boca, chupa chupa chupa un chups”. Tan famoso se hizo este producto que en 1969 Enric Bernat pudo convencer al genial Salvador Dalí para que diseñara el logotipo de la marca. Eso sí hubo de pagar una tarifa millonaria para conseguirlo. Bernat debió pensar que la gran inversión merecía la pena. Andaba ya dándole vueltas a la expansión internacional de su marca.

Cuentan que el artista solo tardó una hora en dibujar la nueva insignia de la marca. Y aunque, si bien puede parecer que en tanto poco tiempo Dalí no debió hacer gran cosa, sí introdujo cambios sustanciales.

La primera novedad fue el uso de un solo color, rojo sobre fondo amarillo. En segundo lugar, incluyó uno de los elementos más fuertes de la identidad de Chupa Chups: la forma de flor que envuelve al logotipo. El último aporte, y quizás el más relevante, fue colocar el logotipo en la parte superior del envoltorio, lo que favoreció su visibilidad y dotó al producto de una personalidad propia.

Tanta que no ha cambiado desde entonces. Lo que sí varió es el palito. En sus inicios era de madera. Ahora es de plástico.

En manos de la familia permanecería la empresa hasta 2006, cuando tres años después de la muerte del fundador, sus hijos y herederos vendieron la mayor parte del capital a la compañía italoholandesa Perfetti Van Melle. Se quebraba así una saga confitera que había logrado que la infancia de todo el mundo –desde España hasta la extinta Unión Soviética, pasando por la China comunista– *rechupetearan* este caramelo con un palo. La marca, sin embargo, sigue haciendo las delicias de pequeños y mayores. De aquellos que lo saborean con paciencia y de los nerviosos que no pueden evitar morder el confite y masticarlo.

Vocabulario

Pringosos: *sticky*; ocultar: *to hide*; pegadiza: *catchy*;

Preguntas sobre el texto

1. ¿Qué observaciones cotidianas llevaron a Enric Bernat a crear el Chupa Chups? [2 marks]
2. ¿En qué año se lanzó por primera vez el Chupa Chups? [1marks]
3. ¿Cuál fue el nombre inicial de los caramelos antes de llamarse Chupa Chups? [1 marks]
4. ¿Qué medio de comunicación ayudó a popularizar el nombre "Chupa Chups" y cómo lo hizo? [2 marks]
5. ¿Quién diseñó el logotipo de Chupa Chups y en qué año? [2marks]
6. ¿Cuáles fueron los tres aportes principales del diseñador al logotipo de Chupa Chups? [3 marks]
7. ¿Qué cambios se hicieron al palito del Chupa Chups desde sus inicios? [1 marks]
8. ¿Qué ocurrió con la empresa en 2006, y cómo afectó a la familia Bernat? [2 marks]

9. ¿Por qué se menciona la expansión internacional en el texto, y qué relevancia tiene para el éxito de Chupa Chups? [2 marks]
10. ¿Cómo describe el texto la diferencia en la forma de consumir el Chupa Chups entre los "pacientes" y los "nerviosos"? [2 marks]

Total : [18 marks]

Grammar Section

1. Verbos: Conjugaciones en diferentes tiempos [6 marks]

Conjugate the following verbs in the preterite tense and the simple future tense.

- añadir (Nosotros): -
- diseñar (Él): -
- variar (Ellos): -

2. Adjetivos: Concordancia de género y número [6 marks]

Correct the gender and number agreements in the following sentences based on the text.

- Enric Bernat tuvo una ideas grande.
- Las radio más potentes difundió la canción pegadizo.
- Los logotipos diseñados por Salvador Dalí eran florales y original.

3. Prepositions: Complete the sentences with the correct preposition according to the context. [4 marks]

1. Bernat observó _____ los niños que comían caramelos.
2. La empresa pasó _____ manos de Perfetti Van Melle en 2006.
1. El logotipo fue colocado _____ la parte superior del envoltorio.
2. La expansión internacional permitió llegar _____ muchos países.

Total : [16 marks]

Section 2 Translation

Translate these sentences into Spanish

1. We used to travel by train, but now we prefer the car.
2. I wish that I could speak French fluently.
3. We have been studying Spanish for three weeks.
4. When Ana was eighteen years old, she used to paint beautiful pictures.
5. Last summer, Miguel and Lucia visited Seville.
6. I always eat breakfast at around 8.00 am in the morning.
7. Maria is the most creative person in her family.
8. This film is more exciting than that documentary.

Total : [16 marks]

Section 3 Writing

NOW START ON A SEPARATE SHEET OF PAPER, WRITING ON ALTERNATE LINES.

Exam Question: Narrative Writing – The Environment

You recently participated in a community event focused on helping the environment. Describe your experience, ensuring you include details about the following points:

- **Where the event took place and who was there**
- **What the activity involved and whether you enjoyed it**
- **How you travelled to the event**
- **Your impression of the event overall**
- **What environmental activity you are planning to participate in next**

Your account may be true or imaginary.

Instructions

Write your response in **Spanish**. Be sure to use a variety of verb tenses (past, present and future) and appropriate vocabulary related to the environment, and ensure your narrative is coherent and engaging.

Total : [20 marks]

TOTAL FOR THE PAPER : 70 MARKS