

Eton College King's Scholarship Examination 2003

GENERAL 1

(One and a half hours)

Answer all the questions. The mark allocation is not the same for each question.

You need not answer the questions in the order set, but you must start each one on a separate piece of paper. If you have not finished a question after about 20 minutes, you are advised to leave it and to go on to another. Return to any unfinished question if you have any time left at the end of the paper.

QUESTION 1 BEGINS OVERLEAF. QUESTION 3 IS FOLLOWED BY A BLANK PAGE SO THAT QUESTION 4 IS ON THE FINAL DOUBLE PAGE.

1. I have a friend called Olly who told me all about his family. His parents were called Malcolm and Nancy. Malcolm knew that two of his grandparents were English and that his father, Ian, was a quarter Irish. (You may assume that a child inherits a half of each of his parents' nationality).

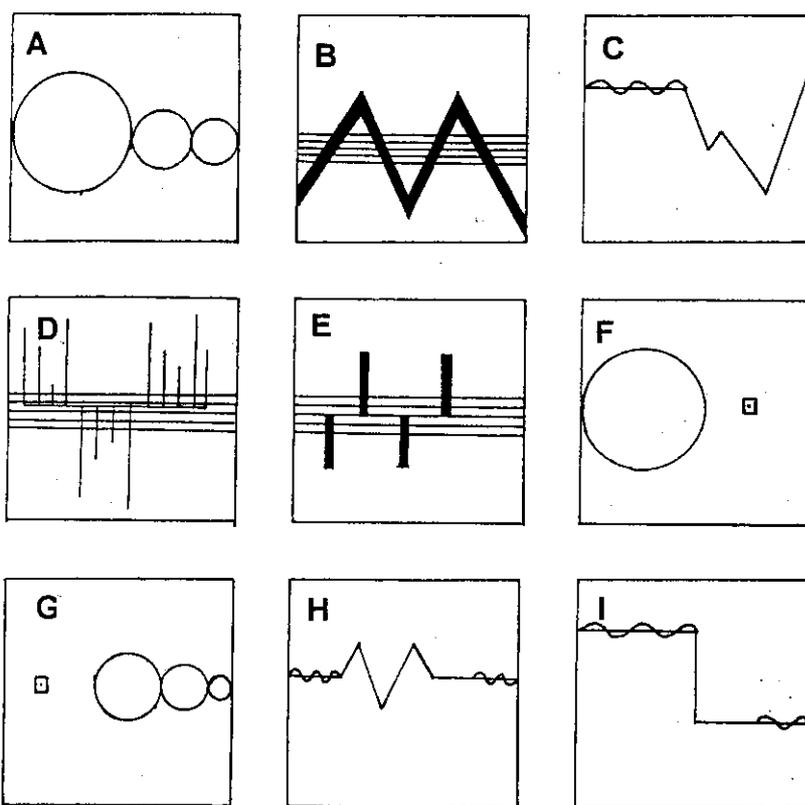
Nancy's paternal grandmother was called Fiona and she was half English and half Scottish. Olly had been told by his mother's mother Linda that Olly's great grandparents on her side were called Graham and Heather and that Heather was fully Scottish whilst Graham was half one nationality and half another.

Ian had married a lady called Jane whose parents both had exactly the same national origin and were called Charles and Dorothy. Nancy's father was called Kieran who was half Irish and whose father was called Edward. Malcolm's paternal grandmother, Betty, was entirely Scottish and had a husband called Andrew who was half Scottish. Kieran's wife was three-quarters Scottish.

- (a) Construct a diagram which displays the information about Olly's family as logically and clearly as possible. [11]
- (b) Olly told me that he was Scottish when in fact he has some Scottish, Irish, English and Welsh blood in him. If Ian is three-quarters Scottish, work out what fraction of each nationality Olly actually is, making sure to show your working. [7]
- (c) Olly has a younger sister and brother. Suggest names for them that the rest of the family might approve of and explain your choice. [2]

[Total 20]

2. Consider the following information then answer the questions below.



Above is an extract from a modern musical composition written in squares each of which can be repeated once or more. The squares contain approximate information for the performers about pitch or volume or duration or a combination of these.

This extract is for three instruments, a percussion instrument, a keyboard instrument and a string instrument. Each player begins at a different lettered square and moves to any other squares he can play. Not every square can be played on each instrument but some squares can be played by more than one instrument.

- Which sign is used in two squares to show silence? [1]
- Explain which squares could be played on an unpitched percussion instrument such as a drum. [3]
- Explain which squares could be played on a keyboard instrument such as a piano. [4]
- Explain which squares could be played on a string instrument such as a violin. [5]
- How does the composer show changes in the sounds he wants? Refer to each square by letter and examine changes of pitch, volume and duration. [9]
- If only one instrument is limited to playing its possible squares once and the others can play their squares more than once, give the maximum number of squares that could be used in a performance of this extract. How did you reach this answer? [3]

3. A Just War

Read the passage and then answer the questions which follow.

For a war to be just three conditions are necessary.

The first concerns the authority of the ruler within whose competence it lies to declare war. A private individual may not declare war; for he can have recourse to the judgement of a superior to safeguard his rights. Nor has he the right to mobilise the people, which is necessary in war. But since the responsibility for public affairs is entrusted to rulers, it is they who are charged with the defence of the city, realm, or province subject to them. And just as in the punishment of criminals they rightly defend the state against all internal disturbance with the civil arm, so they also have the duty of defending the state, with the weapons of war against external enemies. As Augustine says 'The natural order of men, to be peacefully disposed, requires that the power and decision to declare war should lie with the rulers'.

Secondly there is required a just cause: that is that those who are attacked for some offence merit such treatment. Those wars are generally defined as just which avenge some wrong, when a nation or a state is to be punished for having failed to make amends for the wrong done, or to restore what has been taken unjustly.

Thirdly, there is required a right intention on the part of the belligerents: either of achieving a good object or of avoiding some evil. As Augustine says: 'For the true followers of God even wars are peaceful, not being made for greed or out of cruelty, but from desire of peace, to restrain the evil and to assist the good'. So it can happen that even when war is declared by legitimate authority, and there is a just cause, it is, nevertheless, made unjust through evil intention.

Aquinas.

[300 words].

- (a) Summarise the passage in about forty words. [6]
- (b) Some have advanced as a further condition for a just war, that there must be a reasonable expectation of success on the part of the belligerent. Does this condition make a war more just? [9]
- (c) Which of the four conditions mentioned above do you consider the most important? Explain your answer fully. [15]

[Total 30]

THIS IS A BLANK PAGE.

QUESTION 4 BEGINS OVERLEAF.

PLEASE TURN OVER TO CONTINUE THE PAPER.

4. This question concerns a card-game called Families. Its rules are as follows:

1. *The game is played by three players.
Each player starts with a hand of four cards.
Cards belong to families; there are three families and each contains four cards.*
2. *The game proceeds by players asking questions of the form:
Player A: "Player B, have you any cards from Family β ?"
In order to ask this question, A must himself hold some β cards.

If B has any β cards, he must answer "Yes" and give one of them to A.
For brevity, we notate this question and answer as $(A,B)\beta_1$.

If B has no β cards, he must answer "No."
For brevity, we notate this question and answer by $(A,B)\beta_0$.*
3. *If, on receiving a card after an affirmative response, a player holds a hand containing four cards all of the same family, then he must declare the family they constitute, and they are removed from his hand (and the game).
For brevity, we notate A declaring a family of four γ cards as $(-, A)\gamma_4$.*
4. *A player continues to make moves until he receives a negative answer.
Play then passes to the next player (cycling in alphabetical order $A - B - C - A - \text{etc.}$).*
5. *A player who, having declared a family of cards, holds no remaining cards in his hand has WON.
The game then stops.*
6. *A player who lies about his hand, or makes a statement which creates a logical contradiction, has LOST.
The game then stops.*
7. *To prevent trivial wins, no player may start with all four cards of the same family.*

In the examples overleaf, we notate consecutive moves in a game by separating them with a dash, —.

Answer these questions about the following games.

Game (a)

$$(A,C)\alpha_1 \text{ --- } (\dots,B)\alpha_{\dots} \text{ --- } (B,A)\beta_1 \text{ --- } (\dots,A)\alpha_0$$

- (i) What should be in each blank space? Explain your reasoning carefully. [3]
- (ii) What happens next? Explain why. [2]

Game (b)

$$(A,C)\alpha_0 \text{ --- } (B,A)\alpha_{\dots} \text{ --- } (-,\dots)_{\dots 4} \text{ --- } (\dots,C)\beta_{\dots} \text{ --- } (\dots,C)\beta_{\dots} \text{ --- } (C,A)\gamma_{\dots}$$

- (i) What should be in each blank space? Explain your reasoning carefully. [8]
- (ii) What happens next? Explain why. [2]

The game of Quantum Families has the same rules as the game of Families, with one important difference. Real cards are not used, nor are any hands ever dealt. Players choose how to answer the questions they are posed, constrained only by the statements which they and the other players have already made during the game. Unlike Families, players hold no initial private information about the composition of their own hands.

Consider the following game of Quantum Families.

Game (c)

$$(A,B)\alpha_1 \text{ --- } (A,C)\alpha_0 \text{ --- } (B,A)\beta_0 \text{ --- } (C,A)\gamma_1 \text{ --- } (C,B)\beta_1 \text{ --- } (-,C)\beta_4 \text{ --- } (C,A)\gamma_1$$

- (i) If the game is won on the next-but-one move, who is the winner?
- (ii) Explain your answer carefully by computing the imagined distribution of cards in each player's hand. [10]

[Total 25]

Eton College King's Scholarship Examination 2003

GENERAL II

(One and a half hours)

Answer two questions.

Marks will be awarded for clear, interesting and considered arguments.

Spend about 45 minutes on each question.

1. 'Unless God exists no one can be described as evil'. Discuss.
2. Is science a religion?
3. Is it logically possible for a person to be both human and divine?
4. Should God answer prayers?
5. 'Torture can never be morally justified'. Discuss.
6. To what extent is it true that pacifism is the option of cowards?
7. Should we embrace or resist globalisation?
8. Is there any evidence that political correctness has created a culture of mediocrity?
9. 'Modern art is all about making political statements, and not about pleasing the eye'. Discuss.
10. What might feminists mean when they say that 'One is not born a woman but becomes a woman'?
11. 'The modern poor are not pitied but written off as trash. The twentieth-century consumer economy has produced the first culture for which the beggar is a reminder of nothing' [John Berger]. Discuss.

End of paper

Eton College King's Scholarship Examination 2003

MATHEMATICS A

(One and a half hours)

Answer Question 1 and as many of the other six questions as you can.
Question 1 carries 40 marks. All other questions carry 10 marks each.

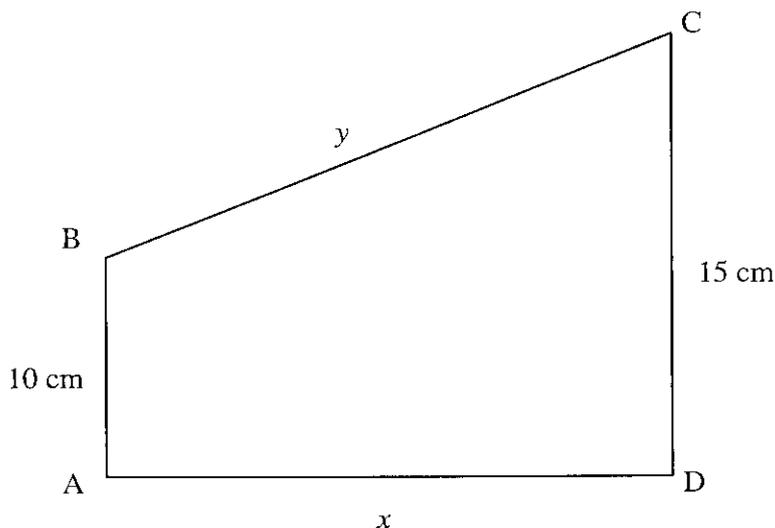
Show all your working.

1. Compulsory Question.

- (a) A solid metal cylinder of radius 6 cm and height 2 cm is melted down and recast into a hemi-sphere and a cone, both of which have a radius of 3 cm. Find the height of the cone.

$$\left(\text{Volume of a cone} = \frac{1}{3} \pi r^2 h; \text{ volume of a sphere} = \frac{4}{3} \pi r^3.\right)$$

- (b) There are 2.6 Australian dollars to the pound. I change £400 into Australian dollars first, and then change these into Singapore dollars. If I now have 832 Singapore dollars, how many Australian dollars are worth 1 Singapore dollar?
- (c) A company owns x minibuses and y coaches. Each minibus seats 15 people, and each coach seats 45 people. If all of the vehicles are used, then 675 people can be seated altogether. One third of the minibuses and two thirds of the coaches total 11 vehicles altogether. Find the values of x and y .
- (d) The area of the trapezium $ABCD$ is 150 cm^2 . Given that $AB = 10 \text{ cm}$, $CD = 15 \text{ cm}$, $AD = x \text{ cm}$, $BC = y \text{ cm}$, and angles ADC and BAD are both 90° , find the values of x and y .



- (e) Simplify the following expression as much as possible

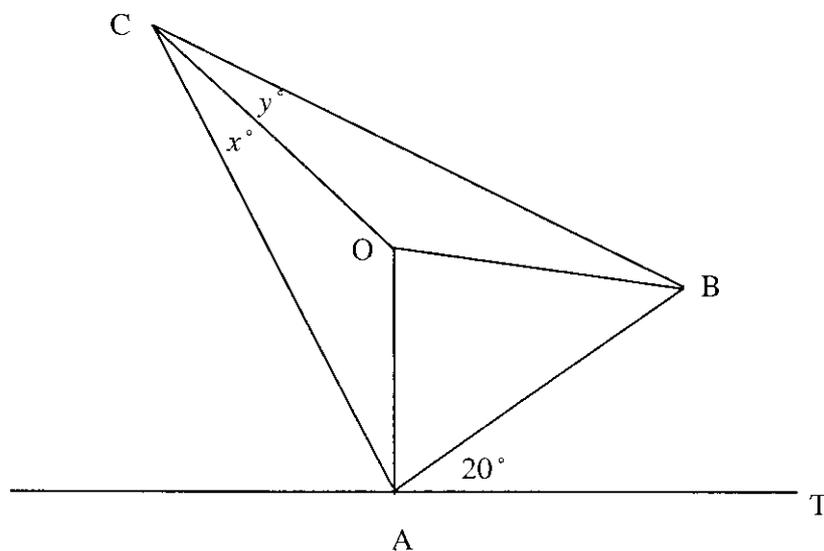
$$p^3 - (5p^2 - 7q(2p - 3q)) - 5p(2q - 4p(p + 3)).$$

- (f) Make x the subject of the following formula

$$a - \sqrt{\frac{b}{d-x}} = f.$$

- (g) (i) A sailor has 6 red flags and 4 blue flags, and he chooses four of them at random to put on the mast. What is the probability that the second flag he chooses is blue?
- (ii) Two fair dice are thrown. What is the probability that at least one of the dice shows a six?
- (h) A batsman plays six innings in a season, and is out on each occasion. His lowest score is 7, and his scores have a mean of 40, a median of 26, a mode of 25 and a range of 93. Find the other five scores.

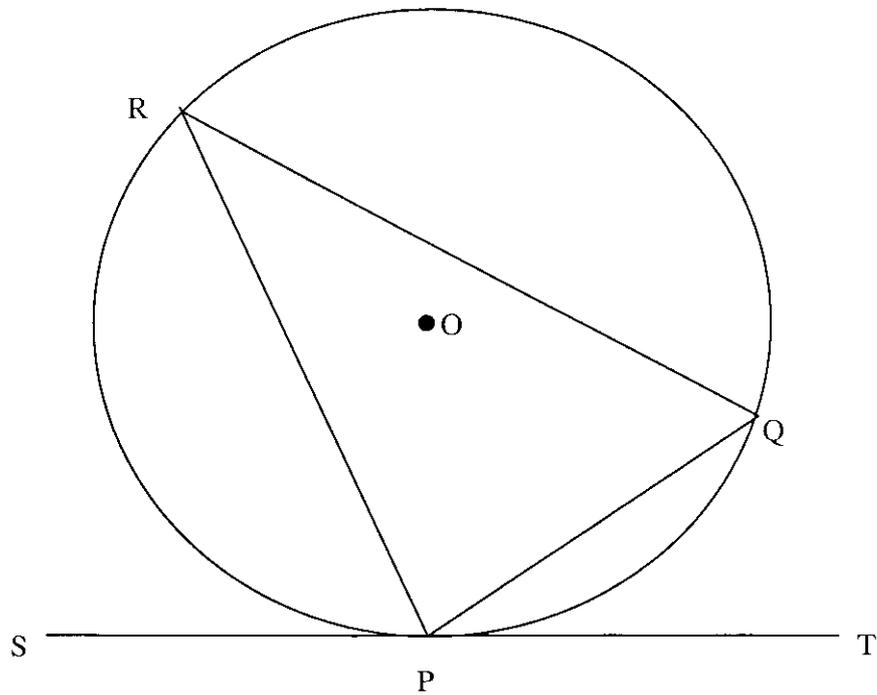
2. (a)



In the above diagram, $OA = OB = OC$, and angles $OAT = 90^\circ$, $BAT = 20^\circ$, $OCA = x^\circ$, and $OCB = y^\circ$. Find formulae for angles COA and COB in terms of x and y respectively, and hence find the value of $x + y$.

- (b) If instead, angle $BAT = p^\circ$, prove that $x + y = p$.

(c)



P, Q, R all lie on a circle, centre O , and ST is the tangent to the circle at P . The tangent ST is perpendicular to the radius OP . If angles $QPT = 40^\circ$, and $PQR = 60^\circ$, find the size of angle SPR .

3. (a) One way of finding the sum of the terms of the sequence

$$1, 2, 3, \dots, 98, 99, 100$$

is to combine $(1 + 100)$, $(2 + 99)$, $(3 + 98)$ and so on, which all sum to 101. So the average value of all of the numbers in the sequence is 50.5. Use this fact to find the sum of the terms of the sequence.

- (b) Hence find a formula in terms of n for the value of

$$1 + 2 + 3 + \dots + (n - 2) + (n - 1) + n.$$

- (c) Find the value of

$$2 + 5 + 8 + \dots + 2096 + 2099 + 3002.$$

- (d) Any sequence which goes up by a fixed amount each time may be described as

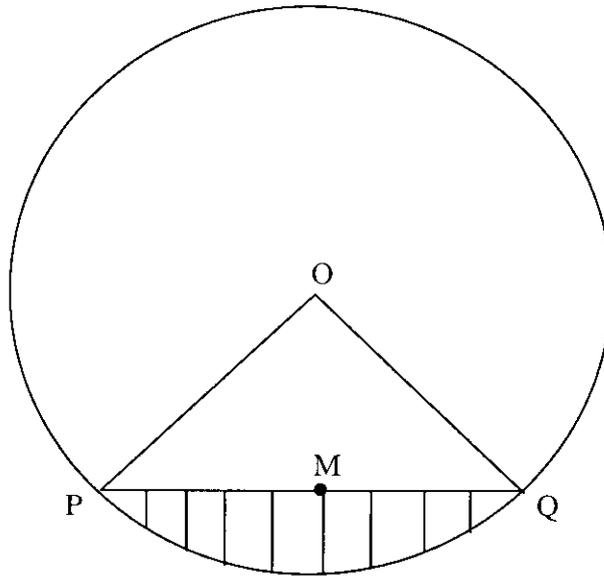
$$a, (a + d), (a + 2d), (a + 3d), \dots$$

where a = the first term, and d = the amount by which the sequence increases.

- (i) Write down an expression for the 10th term in terms of a and d .
(ii) Write down an expression for the n th term in terms of a , d and n .
(iii) Use the method of part (a) to prove that the sum of the first n terms of the sequence is

$$\frac{n}{2} (2a + (n - 1)d).$$

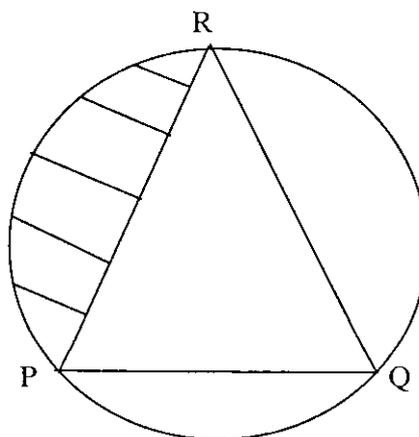
4. (a)



P and Q are points on the circumference of a circle, centre O , with radius $\sqrt{8}$.
 M is the mid-point of chord PQ . Angle $POQ = 90^\circ$.

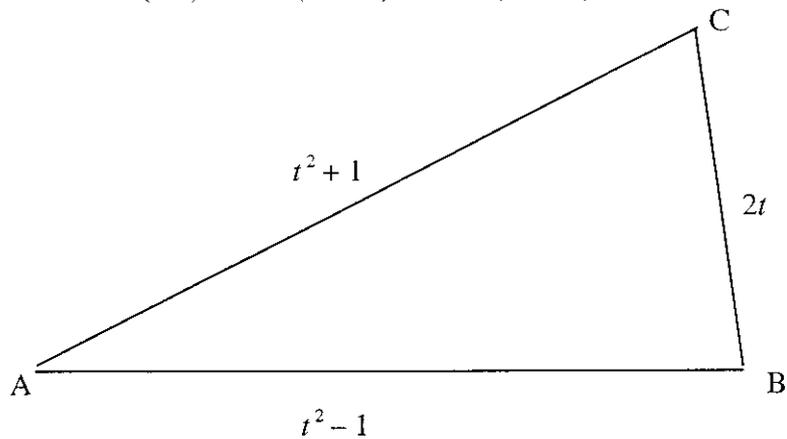
- (I) Find the length of the chord PQ .
- (II) Find the area of triangle OPQ .
- (III) Find the distance from O to M .
- (IV) Find the area of the shaded segment.

(b)



All measurements and angles are the same as part (a), and R is a point on the circumference such that $RP = RQ$. Find the area of the shaded segment.

5. (a) Expand and simplify $(t^2 + 1)(t^2 + 1)$.
- (b) Hence show that $(2t)^2 + (t^2 - 1)^2 = (t^2 + 1)^2$.
- (c)



In triangle ABC , $AB = t^2 - 1$, $BC = 2t$, $AC = t^2 + 1$, as shown.
State, giving a reason, the size of angle ABC .

- (d) If t is an odd number, explain carefully why the lengths of all three sides of the triangle will be even.
- (e) If t is a whole number, then $(t^2 - 1)$, t^2 , $(t^2 + 1)$ are consecutive whole numbers. Use this fact to explain carefully why the length of one of the sides of triangle ABC will be divisible by three, if t is a whole number.

6. The function $|x|$ is defined as the positive value of x .
If x is positive, then $|x| = x$, but if x is negative, then $|x| = -x$.
So for example, $|3.6| = 3.6$, and $|-2| = 2$, and $|0| = 0$.

On separate diagrams, **sketch** each of the following graphs in the interval $-3 \leq x \leq 3$, in each case stating the value of the function when $x = 0$.

(a) $y = |x|$, (b) $y = |x - 1|$, (c) $y = |x| - x$, (d) $y = |x^2 - 4|$.

7. Each different letter in the following **addition** sum represents a different digit from 0 to 9 inclusive (neither P nor T are equal to zero, and not all the digits are used).

$$P \ Q \ R \ S + T \ U \ V \ Q = T \ U \ R \ Q \ W$$

Explaining your reasoning carefully, find which letters correspond to which digits.

Eton College King's Scholarship Examination 2003

ENGLISH

(One and a half hours)

Part I is worth 25 marks; Part II is worth 75 marks. Note that Question 8 in Part II is also worth 25 marks. Answer all questions.

Part I [25 marks]

Read the quotations and proverbs in the two boxes below. The first contains a set of statements about size, scale and importance; the second about our relationship with the past.

(i)

'Small is beautiful.'	E.F. Schumacher
'LINDA: He only needed a little salary. CHARLEY: No man only needs a little salary.'	Arthur Miller
'A great man makes every man feel small. But the really great man is the man who makes every man feel great.'	G.K. Chesterton
'High cedars fall when low shrubs remain.'	<i>Penguin Dictionary of Proverbs</i>
'The great and the little have need of one another.'	<i>Penguin Dictionary of Proverbs</i>

(ii)

'The past is a foreign country; they do things differently there.'	L. P. Hartley
'If you are wise you will never pity the past for what it did not know, but pity yourself for what it did.'	John Fowles
'There is always something rather absurd about the past.'	Max Beerbohm
'Who controls the past controls the future. Who controls the present controls the past.'	George Orwell
'There are no birds in last year's nests.'	<i>Penguin Dictionary of Proverbs</i>

Choose the box which you find more stimulating and write a short essay in which you compare and assess the merits of any **two or more** of the statements within it. You are welcome to refer to any additional sources of knowledge or reading, or to personal experience. Spend about twenty minutes on this question.

Read the following two passages carefully.

(A) However, it was not long before I had an Opportunity of doing his Majesty, at least, as I then thought, a most signal Service. I was alarmed at Midnight with the cries of many hundred People at my Door; by which being suddenly awaked, I was in some kind of Terror. I heard the word *Burglum* repeated incessantly: several of the Emperor's Court, making their way through the
 5 Croud, intreated me to come immediately to the Palace, where her Imperial Majesty's Apartment was on fire, by the carelessness of a Maid of Honour, who fell asleep while she was reading a Romance. I got up in an instant; and Orders being given to clear the way before me, and it being likewise a Moon-shine Night, I made a shift to get to the Palace without trampling on any of the People. I found they had already applied Ladders to the Walls of the Apartment, and were well
 10 provided with Buckets, but the Water was at some distance. These Buckets were about the size of a large Thimble, and the poor People supplied me with them as fast as they could; but the Flame was so violent that they did little good. I might easily have stifled it with my Coat, which I unfortunately left behind me for haste, and came away only in my leathern Jerkin. The Case seemed wholly desperate and deplorable; and this magnificent Palace would have infallibly been burnt down to the
 15 ground, if, by a Presence of Mind, unusual to me, I had not suddenly thought of an expedient. I had the Evening before drunk plentifully of a most delicious Wine, called *Glimigrim* (the *Blefuscudians* call it *Flunec*, but ours is esteemed the better sort), which is very diuretick. By the luckiest chance in the World, I had not discharged myself of any part of it. The Heat I had contracted by coming very near the Flames, and by my labouring to quench them, made the Wine begin to operate by
 20 Urine; which I voided in such a Quantity, and applied so well to the proper Places, that in three Minutes the Fire was wholly extinguished, and the rest of that noble Pile, which had cost so many Ages in erecting, preserved from Destruction.

It was now Day-light, and I returned to my House, without waiting to congratulate with the Emperor: because, although I had done a very eminent piece of Service, yet I could not tell
 25 how his Majesty might resent the manner by which I had performed it: For, by the fundamental Laws of the Realm, it is Capital in any Person, of what Quality soever, to make water within the Precincts of the Palace. But I was a little comforted by a Message from his Majesty, that he would give Orders to the Grand Justiciary for passing my Pardon in form; which, however, I could not obtain. And I was privately assured, the Empress conceiving the greatest Abhorrence of what I
 30 had done, removed to the most distant side of the Court, firmly resolved that those Buildings should never be repaired for her Use: and, in the presence of her chief Confidants could not forbear vowing Revenge.

(B) Not long after, I was able to do His Majesty an important service, or so I thought. I was woken at midnight by cries of alarm at my door. Her Imperial Majesty's apartments were on fire and I must go immediately to the palace.

5 Already there were ladders against the walls and people were carrying many buckets of water. But the flames were so violent that this magnificent palace would have burned to the ground in minutes if I had not suddenly thought of a plan.

The evening before I had drunk much wine. Now I emptied it as urine – so much, aimed so well, that in three minutes the fire was completely out.

10 Yet I hurried home without waiting for the Emperor's thanks, for though I had put the fire out, I feared His Majesty might be angry at how I had done so. In Lilliput it is a crime for anyone to make water within the palace grounds – punishable by death.

His Majesty did send word that he forgave me, and also gave *permission for me to visit Blefuscu*. But I heard also that the Empress was so disgusted at what I had done that she had vowed revenge against me.

Take careful note of the following information and then answer the questions printed below.

Passage A is from *Travels into several remote Nations of the World; in Four Parts; by Lemuel Gulliver, first a Surgeon and then a Captain of several Ships*. The text follows the first edition of 1726.

Passage B is from *Jonathan Swift's Gulliver's Travels, Retold by Beverley Birch*; published in 2002 by Hodder Wayland as part of their 'Classic Collection' series.

1. Consider the relationship between the two passages printed opposite and explain briefly why you think they tell the same story so differently. [4]
2. The author of Passage A is Jonathan Swift, though his name did not appear at all in the early editions of *Gulliver's Travels*. What reasons might Swift have had for not revealing himself as the book's true author? [4]
3. (i) Compare the use of capital letters in the two passages. What differences do you notice? Does Swift appear to use capitals on any consistent basis? [3]
(ii) Why do you think italics were used for a number of words in the passage by Swift? [3]
(iii) When Swift wrote *Gulliver's Travels*, the spelling of English had not been fully formalised. Identify two words in the passage which you think would be spelt differently today, and give the more common spelling. [3]
(iv) Today, several words in Standard English may still be spelled in different ways. Give two examples. [4]
4. A number of phrases current in 18th century English may strike today's reader as unusual. Give an updated 'translation' or equivalent of each of the following as they occur in Passage A:
 - (i) 'I made a shift' (line 8) [2]
 - (ii) 'cost so many Ages' (line 21) [2]
 - (iii) 'it is Capital' (line 26) [2]
5. What do you understand by the following words as they occur in Passage A?
 - (i) 'expedient' (line 15) [2]
 - (ii) 'diuretick' (line 17) [2]
 - (iii) 'Quality' (line 26) [2]
6. The Empress is disgusted with Gulliver and his fire-fighting methods.
 - (i) What view does Gulliver take of his own actions in Passage A? [3]
 - (ii) What view do you believe Swift supposed his readers might take? [3]
 - (iii) Why do you think that a number of 19th and even 20th century versions of *Gulliver's Travels* omitted this episode altogether? [3]
7. In Passage B, Beverley Birch has made a number of decisions about what to exclude and what to alter. Explain what you feel are her most significant changes to the content of Gulliver's narrative and point out any ways in which you feel Swift's intentions or achievements may have been lost or obscured. [8]

8. Read the following passage, which is another episode from Beverley Birch's retelling of *Gulliver's Travels*:

I replied that I would do all in my power to defend Lilliput against invaders.

With my spy glass I looked across the sea-channel between the islands and could see the enemy's fleet at anchor. I had already told the Emperor about an idea I had of capturing the warships before they could attack.

I obtained great quantities of cable and iron bars. I twisted three bars together and bent the hook. I then fixed fifty hooks to fifty cables, went back to the coast and walked into the sea.

I fastened a hook to the prow of each warship and tied all the cords together at the other end. The enemy shot several thousand arrows at my face and hands. I was most afraid for my eyes but put on my spectacles to protect them. Next I cut the anchor cables with my knife, and then easily drew fifty warships back to Lilliput.

At once the Emperor made me a *Nardac*, the highest rank in the empire.

Now write your version of all, or part, of the above. Follow the gist of the story and write in the voice of Gulliver, but add more detail, incident and commentary. As far as you are able, try and imitate Swift's style of English.

[25]

Eton College King's Scholarship Examination 2003

LATIN

(One and a half hours)

Answer Question 1 and ONE other question.

1. Translate this passage into English and then answer the questions below. You should write your translation on alternate lines.

King Artaxerxes has enlisted the help of Mithridates to kill his rival Datames. Mithridates has managed to obtain Datames' trust by continually raiding the king's land and appearing to be his friend. He has at last set a date to meet Datames and supposedly discuss military tactics against the king.

- Mithridates ad hunc agrum cum paucis iuvenibus, ut dolum pararent, contendit. gladios in multis locis sepeliverunt et haec loca bene notaverunt. deinde, ipso die colloqui, Mithridates et Datames servos ut regionem explorarent miserunt. cum diu locuti consilium tandem cepissent, diversi discesserunt; Mithridates tamen, postquam Datames paene ad suos comites advenit, in unam partem agri progressus ubi gladium sepultum esse sciebat, subito ibi constitit; statim, gladio celeriter effosso, Datamem magna voce revocavit, simulans se rem novam ei dicere velle. ille igitur, nihil periculi timens, cum videret Mithridatem adhuc solum esse, redibat; Mithridates ei venienti dixit se optimum locum ubi contra regem pugnarent iam invenisse. dum hunc locum in montibus manu sinistra ei ostendit, manu dextra Datamem gladio interfecit. sic, ille vir, qui multos virtute, neminem dolo ceperat, amicitia simulata captus est.

NEPOS (adapted) [40]

<i>dolus-i (m)</i>	trap, trickery	<i>diversi</i>	in different directions
<i>sepelio-ire-ivi, sepultum</i>	I bury	<i>consisto-ere-stiti</i>	I stop
<i>noto-are-avi-atum</i>	I note	<i>effodio-fodere-fodi-fossum</i>	I dig out
<i>colloquium-i (n)</i>	meeting	<i>simulo-are-avi-atum</i>	I pretend
<i>consilium capio</i>	I devise a plan	<i>sinister-stra-strum</i>	left

- (a) *hunc* (line 1): give the gender, number and case of this word. [1]
 (b) *pararent* (line 1): in which tense of the subjunctive is this verb? [1]
 (c) *sepeliverunt* (line 2): change this into the passive, keeping the same person and tense. [2]
 (d) *explorarent* (line 3): why is this verb in the subjunctive? [1]
 (e) *locuti* (line 3): from which verb does this come? [1]
 (f) *gladio...effosso* (line 6): what construction is this? [1]
 (g) Put *magna voce* (line 6) into the plural, keeping the same case. [2]
 (h) *se* (line 6): to whom does this refer? [1]
 (i) *esse* (line 7): why is this in the infinitive? [1]
 (j) *venienti* (line 8): which part of the verb is this? You should include the case and number. [2]

- (k) *optimum* (line 8): give the positive and comparative of this adjective, in the nominative masculine singular. [2]
- (l) Give the opposite of *optimum* (line 8) in Latin. [1]
- (m) *invenisse* (line 9): which part of the verb is this? [2]
- (n) Give the first person singular present indicative active of:
 (i) *miserunt* (line 3) and (ii) *discesserunt* (line 4) [2]
- [20]

[Total for Question 1: 60]

ANSWER EITHER QUESTION 2 OR QUESTION 3

2. Read the following passage, then answer the questions below. DO NOT TRANSLATE unless you are specifically asked to do so. You should pay careful attention to the number of marks for each question.

At Veii, a neighbouring town, plans were underway to help Rome, which was being besieged by the Gauls. Had it not been for some alert geese, their proposed help might well have been in vain.

dum socii Romanorum auxilium ferre conantur, interea Capitolium in ingenti periculo fuit. nam Galli, cum nuntium de Capitolio secreta via descendentem vidissent, militem ut hanc viam cognosceret nocte praemiserunt. postquam hic viam tutam sed difficilem esse nuntiavit, omnes Galli eum sequebantur. non eis facile erat ascendere; alii in umeris aliorum stabant ut se ipsos tollerent, alii manibus validis aliorum tollebantur; tela omnia, quod nemo ascendens sua portare poterat, ab imo Capitolio ad summum per manus tradita sunt. tanto tamen silentio in summum evasere ut non solum custodes fallerent, sed etiam canes, qui omnem sonum nocturnum audire solebant, non excitarent. anseres autem sacri Iunoni non falsi sunt, quos Romani, quamquam sine multo cibo iam quadraginta dies obsidebantur, necare noluerant. haec res felix Romanis fuit; nam M. Manlius, vir bello notissimus, excitatus strepitu vocum alarumque, ceteros custodes hortans ut urbem secum servarent, primum Gallum scuto statim ad imum demittit; corpore deiecto, alii Galli timebant ne ipsi idem paterentur.

LIVY (adapted)

<i>Capitolium-ii (n)</i>	the Capitol (Rome's citadel)	<i>fallo-ere, fefelli, falsum</i>	I deceive
<i>Gallus-i (m)</i>	a Gaul	<i>soleo-ere, solitus sum</i>	I am accustomed to
<i>cognosco-ere</i>	I get to know, check out	<i>excito-are-avi-atum</i>	I wake
<i>alii...alii</i>	some...others	<i>anser-eris (m)</i>	goose
<i>umerus-i (m)</i>	shoulder	<i>Iuno-onis (f)</i>	Juno
<i>tollo-ere</i>	I lift, raise up	<i>obsideo-ere</i>	I besiege
<i>imus-a-um</i>	bottom (of)	<i>strepitus-us (m)</i>	noise
<i>evado-ere-si-sum</i>	I climb up	<i>ala-ae (f)</i>	wing

- (a) What are we told was the situation in Rome in lines 1-2 (*interea...fuit*)? [2]
- (b) *ferre* (line 1): give the principal parts of this verb. [2]

- (c) *conantur* (line 1): in which tense is this verb? [1]
- (d) What did the Gauls see to give them the idea about a possible way up to the Capitol? (line 2) [4]
- (e) What did the soldier announce to all the other Gauls? (lines 3-4) [2]
- (f) How did the men help each other to climb up? (*alii in umeris...aliorum tollebantur*) (lines 4-5) [4]
- (g) *quod nemo ascendens sua portare poterat* (line 6): translate this clause into good English, showing that you understand what word, agreeing with *sua*, is left out in the Latin. [4]
- (h) *manus* (line 6): give the number and case of this word. [1]
- (i) *evasere* (line 7) is a shortened form of the 3rd person plural perfect indicative. Give the unshortened form. [1]
- (j) Why is *fallerent* (line 7) in the subjunctive? [1]
- (k) What does Livy tell us about the dogs which makes it surprising that they did not wake up? (line 8) [2]
- (l) Why might the Romans in the citadel have been tempted to eat the geese? Why did they refuse to do so? (*anseris autem...necare noluerant*) (lines 8-10) [3]
- (m) *vocum* (line 11): give a suitable translation of this word in this context. [1]
- (n) What **two** things did Marcus Manlius do after he was woken up? (*nam M.Manlius... ad inum demittit*) (lines 10-12) [5]
- (o) Looking at the context of *demittit* (line 12) and *deiecto* (line 13), suggest the meaning of the prefix *de-*. [1]
- (p) Of what were the other Gauls afraid? (*alii Galli...idem paterentur*) (line 13) [3]
- (q) Pick out and write down **one** Latin word in the passage which tells us at what time this incident took place. [1]
- (r) Give an example from the passage of a pluperfect subjunctive. [1]
- (s) Give an example from the passage of an indirect command. [1]

[Total for Question 2: 40]

3. *Translate this passage into Latin. You should write your translation on alternate lines.*

Caligula wanted all the Romans to believe that he was a good leader. And so he sent some German slaves into the towns near the Rhine and ordered his soldiers to attack them. When they had captured these slaves, whom he called enemies, he sent a messenger at once to Rome to say that he had at last defeated the Germans. In order to persuade the Romans, he collected almost a thousand Gauls living in that area, and pretended that these men were the defeated Germans. Having seen these captives, many of the Romans said to their friends, "These poor fellows are not German, are they? Listen! Can you hear them speaking?"

Caligula	<i>Caligula-ae (m)</i>	a Gaul	<i>Gallus-i (m)</i>
German	<i>Germanus-a-um</i>	area	<i>regio-onis (f)</i>
Rhine	<i>Rhenus-i (m)</i>	I pretend	<i>simulo-are-avi-atum</i>

[Total for Question 3: 40]

Eton College King's Scholarship Examination 2003

FRENCH

(One and a half hours)

WRITE YOUR CANDIDATE NUMBER HERE: **CAND**

This paper consists of five questions. You must answer ALL the questions, and complete the first four in an hour. The time taken to read the passage for Question 5 is in addition to the one and a half hours given for the paper. Your answers to Questions 1 and 4 should be written ON THE QUESTION PAPER in the spaces provided. Your answers to Questions 2,3 and 5 should be written on the examination stationery.

1. *USE OF FRENCH (10 marks). You are advised to spend no more than ten minutes on this question. Write your answers in the spaces provided.*

a) *Translate the following verb forms into French, using the verb that is given in brackets:*

(comprendre) We understand :

(espérer) They hope :

(se taire) Be quiet! (2nd person singular) :

(lancer) I was throwing :

(ranger) She used to tidy :

(vouloir) We will want :

(venir) They will come :

(recevoir) I would receive :

(prendre) She has taken :

(se coucher) She has gone to bed :

b) Fill each of the following ten gaps with a single French word, as in the examples set out below:

Examples: *Où est (le) parapluie? Est-ce que je l'(ai) perdu?*
 Elle (en) a pris deux dans (son) sac à main.

Veux-tu aller () cinéma? Oui, allons-().

Il ne va () part parce qu'il a peur () se perdre.

Où () les outils () tu t'es servi?

() s'être couchée elle a lu son livre () minuit.

Elle () dix-huit ans () elle est allée à l'université.

c) Look at the examples set out below:

Quand je serai plus vieux, je serai professeur.
 (or) j'achèterai une Renault.

Où sont les disques que j'ai mis sur la table?
 (or) que j'ai achetés hier?

Now use your imagination to complete the following sentences in French:

Je suis triste parce que.....

Il a commencé.....

A peine.....

Ce soir je

S'il avait fait beau.....

2. READING COMPREHENSION (25 marks) :

To be written on examination stationery.

Read the following passage carefully and then answer questions (a) – (p) **IN ENGLISH**. Your answers must be based on the information contained in the text.

TROIS CENTS PERSONNES HIER SOIR A LILLE-SUD

Bernard Charles réclame un verre d'eau à la mairie de Lille-sud. Il fait un discours fleuve devant 300 habitants du quartier qu'il préside. Debout sur la petite estrade, il tourne le dos à des élus qui ont le sourire. Les élus "secondaires et bénévoles qui sont vos représentants au comité du quartier" et les élus, les vrais, ceux du conseil municipal comme Bernard Roman, député très populaire ici, son jardin électoral, et Patrick Kanner, autre adjoint de Martine Aubry et présent en tant que conseiller général sur le canton sud-ouest (sans oublier Caroline Nio, également conseillère générale, sur le canton sud).

Devant Bernard Charles, son public. Avant de prendre la parole, Madjoulina, Fatima et Layla ont souhaité "une bonne année à tous" au nom du conseil municipal d'enfants élus en octobre dans les différentes écoles primaires du quartier. Copieusement applaudis comme ils le méritaient, les enfants ont expliqué, par exemple, qu'ils organisaient une collecte de bouchons en plastique pour financer l'achat de fauteuils roulants ou qu'ils mettaient au point un livret sur l'eau à destination de leurs petits camarades des classes du quartier. Chauffés par la prestation des trois jeunes filles, les gens n'avaient plus qu'à bien se caler au fond de leur chaise. Et écouter Bernard Charles *faire l'énumération du réalisé* en 2002 et du réalisable en 2003, dans la perspective, bien sûr, de 2004.

La jeunesse – en 2003: rénovation de la crèche rue André-Gide en augmentant le nombre de places.

Les écoles – en 2003: choix d'un architecte pour la rénovation de la toiture au groupe Lebas rue Berthelot, préparation de la rénovation de Turgot rue du Faubourg-des-Postes, construction du restaurant à Jean-Bart (dont profiteront les enfants de Turgot), réfection de la cour de la Bruyère.

Le sport – en 2003: *une nouvelle salle de musculation* à la salle Michelet, démarrage des travaux ce premier trimestre; une nouvelle salle de sports rue François-Coppée; rénovation de la salle Blondin; construction d'une halle et d'un site *des sports de glisse*: roller acrobatique, roller en ligne, skate, etc.

Le logement – Entre autres, remplacement des portes des immeubles Colette, Péguy, Loti, La Fontaine, avec contrôle d'accès. Nouvelles chaudières à la résidence Michelet. Nouveau *contrôle d'accès* à Sylvère-Verhulst.

Et... Les premiers pas pour la rue de la création et de la mode, au Faubourg-des-Postes, pour un "quartier de la mode" et un nouveau pôle culturel d'ici fin 2004. Martine Aubry présentera le projet aux habitants début mars, *date à préciser*; les travaux de terrassement de l'hôtel de police fin 2003, pour une livraison en 2005; le dossier de la friche Paindavoine (bloqué par un problème de dépollution des sols, comme la friche Fauvet Girel); le cas de l'église Saint-Philibert que l'évêque souhaite démolir et la construction du nouveau collège Louise-Michel à l'angle des rues de Cannes et André-Gide.

- a) What is Bernard Charles' first action before making his speech? [1]
- b) What is the attitude of the elected representatives sitting behind him? [1]
- c) How is Bernard Roman described, and why might he feel at ease in this place? [3]
- d) Who do Madjoulina, Fatima and Layla represent? What do they say to the crowd at first? [3]
- e) What was the crowd's response to them? [1]
- f) What did Madjoulina, Fatima and Layla say they were collecting and why? [3]
- g) What did Bernard Charles promise to do in the year 2003 at the rue André-Gide? [3]
- h) In what **two** ways will the pupils at Turgot benefit in 2003? [2]
- i) When will work at the "salle Michelet" sports centre start? [1]
- j) What kind of district is to be created at Faubourg-des-Postes? [1]
- k) What does the bishop want to do to the Saint Philibert church? [1]
- l) -p) Give the meaning of the phrases in **bold italics**. You may explain or translate them. [5]

3. TRANSLATION (25 marks)

To be written on examination stationery.

Translate into English, paying attention to the style as well as the accuracy of your translation.

MONTPELLIER: DEUX CHAUFFEURS DE BUS BRAQUÉS

Drôle de coïncidence, à Montpellier, ces deux derniers jours. En 24 heures en effet, deux chauffeurs de bus de la ville se sont retrouvés avec des armes à poing pointées en leur direction... Hier matin, vers 9 heures, un individu de 29 ans, s'est amusé à pointer un pistolet tirant des balles en caoutchouc en direction des passants, puis il a pointé son arme en direction d'un chauffeur de bus qui patientait à l'arrêt, au feu rouge. Il a été arrêté par les policiers dans la foulée et, ivre – 1,66 g d'alcool dans le sang – il a été placé en cellule de dégrisement. Juste avant son interpellation, au petit matin, les policiers avaient cueilli un individu, à son domicile, suspecté d'avoir braqué lui aussi un chauffeur de bus, mardi matin. Cet homme de 50 ans, touchant une pension d'adulte handicapé, avait pris le bus sans ticket et s'était fait rappeler à l'ordre par le conducteur. Il avait exprimé son mécontentement, avant, quelques minutes plus tard, de revenir à la charge et de sortir un calibre – non chargé – puis de s'enfuir. L'enquête du voisinage avait permis son arrestation. Les deux individus ont été placés en détention provisoire hier soir après que leur procès en comparution directe avait été reporté.

4. TRANSLATION INTO FRENCH (10 marks)

Write your answer in the space provided.

(Remember that the Reading Comprehension and the Translation provide almost all the words and structures that you will need.)

a) She enjoyed herself organising the collection.

b) The architect has demolished the blocks of flats.

c) Three bus drivers were waiting at the traffic lights in the small hours of the morning.

d) Before starting to speak to the passers-by, he talked to the girl.

e) They will applaud you because you have deserved it.

5. REPRODUCTION STORY (30 marks)

To be written on examination stationery.

The story will be read to you twice. You may not take notes during the reading. You should aim to reproduce the story in about 120-130 words of French, and you will be marked for the style as well as the accuracy of your version.

THE MAID WHO DID NO WORK

M. Dalier – pharmacien – une bonne à tout faire – le travail de ménage – une jeune femme jolie et bien présentée – se tromper d’adresse – excellentes références – quatrième jour – un fracas épouvantable – championne de gymnastique – ne pas se plaindre – jouer du piano – chanter à tue-tête – trouver l’aspirateur – la robe du soir – ordonner à la bonne – la psychologie et la sociologie – s’intéresser à.

Eton College King's Scholarship Examination 2003

FRENCH (Supervisor's Copy)

5. *REPRODUCTION STORY. The time taken to read the passage twice is in addition to the one and a half hours given for the paper.*

THE MAID WHO DID NO WORK

Un certain M. Dalier, qui était pharmacien dans une petite ville au sud-ouest de la France, décidant que sa femme était surchargée de travail, a écrit à une agence pour demander une bonne à tout faire. Ils avaient deux enfants, Elsa et Bruno, qui avaient huit et dix ans, et M. et Mme. Dalier étaient tellement débordés de travail dans la pharmacie qu'il leur fallait quelqu'un qui puisse les emmener à l'école le matin et aller les chercher le soir. En plus, ils voulaient trouver quelqu'un pour faire le travail de ménage, comme par exemple faire la vaisselle, laver le linge, faire les courses et même préparer le déjeuner à midi.

Deux jours plus tard, une jeune femme s'est présentée, si jolie et si bien mise que Mme Dalier lui a demandé si elle s'était trompée d'adresse. Elle portait un complet tout neuf et il était évident qu'elle payait cher les vêtements.

- Mais non, Madame, je suis la nouvelle bonne. Je m'appelle Amélie, je travaille bien et j'ai d'excellentes références.

Tout s'est très bien passé jusqu'au quatrième jour. A cinq heures du matin, les Dalier ont été brusquement tirés de leur sommeil par un fracas épouvantable venant de la chambre d'Amélie.

- Mais, dites donc! a hurlé M. Dalier, furieux. On ne peut pas nous laisser dormir, non?

Amélie leur a expliqué qu'elle était championne de gymnastique et qu'elle aimait s'entraîner le matin. M. Dalier était très fâché contre Amélie mais elle avait si bien fait son travail qu'il ne pouvait pas se plaindre trop.

Le lendemain matin Mme. Dalier est allée travailler en ville. Lorsqu'elle est rentrée elle a vu avec stupéfaction Amélie qui jouait du piano et qui chantait à tue-tête au lieu de nettoyer la maison. Maîtrisant sa colère, elle lui a suggéré que ce serait une bonne idée qu'elle aille trouver l'aspirateur et qu'elle commence à faire le ménage.

Ce qui a décidé du sort d'Amélie, c'était le jour où Mme. Dalier l'a trouvée, vêtue de sa propre robe du soir, en train de s'admirer dans une glace.

- Non, cette fois-ci j'en ai assez, s'est pensé la dame et elle a ordonné à sa bonne de partir immédiatement.

Quelques jours plus tard les Dalier ont reçu une lettre d'Amélie. Elle expliquait qu'elle étudiait la psychologie et la sociologie, et s'intéressait surtout aux réactions des hommes et des femmes à des situations impossibles.

[30 marks]

Eton College King's Scholarship Examination 2003

GREEK

(One and a half hours)

Candidates should attempt ALL the questions on this paper.

1)

(a) Give the appropriate forms of the following articles and nouns:

- (i) ὁ δοῦλος dative singular
- (ii) τὸ δένδρον genitive plural
- (iii) ἡ οἰκία accusative singular
- (iv) ἡ τιμή nominative plural
- (v) ὁ νεανίας genitive singular

[5]

(b) Convert these nouns into their opposite number, keeping them in the same case (i.e. if they are singular, make them plural; if they are plural, make them singular):

- (i) τὸν λόγον
- (ii) ταῖς οἰκίαις
- (iii) τῆς νήσου
- (iv) τοῖς παισὶ

[4]

(c) Translate into English:

- (i) λύουσιν
- (ii) ἐλύομεν
- (iii) ἔλυσαν
- (iv) λυε
- (v) λύσασα

[5]

(d) Translate into Greek:

- from λύω: (i) I shall loose
- (ii) to loose
- (iii) you (sing.) loosed
- from φιλέω: (iv) you (sing.) love
- (v) they were loving
- from εἰμί: (vi) we are

[6]

[Total for Question 1: 20]

2) Translate the following passage into English. **write your translation on alternate lines.**

Envoys from the King of Persia, Artaxerxes, urge a Greek army to surrender their arms and support the king.

οἱ τοῦ βασιλέως κήρυκες νῦν προσβαίνουσιν. καὶ οἱ μὲν πολλοὶ αὐτῶν βάρβαροί εἰσιν, εἷς δὲ αὐτῶν Ἕλληνας ἐστὶν, Φαλῆνος ὀνόματι. ὁ γὰρ Ἀρταξέρξης αὐτὸν μάλιστα τιμᾶ. οἱ δὲ κήρυκες προχωροῦσι καὶ καλοῦσι τοὺς τῶν Ἑλλήνων στρατηγούς. ἔπειτα οὕτω λέγουσιν· “ὁ δὲ βασιλεὺς κελεύει ὑμᾶς, ἐπεὶ ἐνίκησε καὶ τοὺς πολεμίους ἀπέκτεινεν, παρέχειν τὰ ὄπλα καὶ ἔπεισθαι αὐτῷ, συμμάχους ὄντας.” οἱ δὲ Ἕλληνες ἐν ἀπορίᾳ εἰσὶ καὶ λέγουσιν· “ἡμεῖς δὲ αὐτοὶ πολλάκις ἐνικῶμεν ἐν ἄλλαις μάχαις. κακὸν οὖν ἐστὶ ἡμῖν παρέχειν τὰ ὄπλα.” ταῦτα δὲ ἀκούει ὁ Φαλῆνος καὶ γελῶν, “μωρότατοι νῦν ἐστε,” ἔφη, “ὦ Ἕλληνες. ὑμᾶς γὰρ ἔχει ὁ βασιλεὺς ἐν μέσῃ τῇ αὐτοῦ χώρα καὶ ἐντὸς ποταμῶν ἀδιάβατων.”

εἷς	one
μῶρος, -α, -ον	stupid
μέσος, -η, -ον	middle
ἐντός	within (+ genitive)
ἀδιάβατος, -ον	impassable

[Total for Question 2: 20]

3) Answer the questions on the following passage. **Do not translate unless specifically asked to do so.**

Euphiletus, accused of murdering his wife's lover, describes to an Athenian jury how he found out about her love affair.

ὦ Ἀθηναῖοι, ἐπεὶ ἔδοξέ μοι ταύτην τὴν γυναῖκα εἰς τὴν ἐμὴν οἰκίαν ἄγειν, ἐνόμιζον ὡς αὐτὴ ἀρίστη πασῶν γυναικῶν ἐστίν. ὕστερον δέ, τῆς ἐσπέρας οἴκαδε ἐξ ἀγροῦ ἦλθον. ἔπειτα δὲ ἐδείπνου, καὶ ὁ παῖς κάτω ἐβόα. ἐκέλευον οὖν τὴν γυναῖκα ἀπιέναι πρὸς τὸν παῖδα, οὕτω λέγων· “τὸ παιδίον δεῖταί σου καὶ οὐκ ἐθέλει σιγαῖν.” ἀλλὰ, ὡς ὕστερον ἐπυθόμην, ἀνθρωπὸς τις, ὃς τὴν ἐμὴν γυναῖκα μάλιστα ἐφίλει, ἐν τῇ οἰκίᾳ ἦν. ἐπεὶ δὲ ἠρόμην· “διὰ τί τῆς νυκτὸς αἱ θύραι ψόφον ἐποίησαν;” οὕτως ἀπεκρίνατο ἡ γυνή· “οὐκ ἦν λύχνος παρὰ τῷ παιδίῳ καὶ ἤτησα τοὺς γείτονας πῦρ μοι παρέχειν.” καὶ ἐγὼ αὐτῇ ἐπίστευον. μετὰ δὲ ταῦτα, ὦ ἄνδρες, προσῆλθέ μοι γραῦς τις καί, “Εὐφίλητε,” ἔφη, “ἀνὴρ τις ὑβρίζει εἰς σε καὶ τὴν σὴν γυναῖκα. ἡ γὰρ θεράπαινα ἢ εἰς τὴν ἀγορὰν βαδίζουσα πάντα ἔμαθε ἀλλὰ οὐδὲν ἐθέλει εἰπεῖν.” ἐκέλευσα οὖν τὴν θεράπαιναν λέγειν τὰ γενόμενα, καὶ εὐθύς πάντα τὰ ἀληθῆ εἶπεν.

ἔδοξέ μοι	‘I decided’	ὁ λύχνος	lamp
ἐνόμιζον ὡς	‘I thought that’	αἰτέω, ἤτησα	I ask
κάτω	downstairs	ὁ γείτων, -ονος	neighbour
δέομαι	I need (+ gen.)	ἡ γραῦς	old woman
πυνθάνομαι, ἐπυθόμην	I learn	ὑβρίζω εἰς	I commit outrages against
ἐρωτάω, ἠρόμην	I ask	ἡ θεράπαινα	slave girl
ὁ ψόφος	noise		

- (a) What does Euphiletus say he thought of his wife in line 2? [2]
(b) Where was he coming home from, and at what time of the day (lines 2-3)? [1+1]
(c) What was the baby doing while Euphiletus was eating his dinner (line 3)? [1]
(d) What reason does he give for telling his wife to go to the baby (lines 4-5)? [2]
(e) What does he find out later (lines 5-6)? [3]
(f) What indication is there in lines 6-7 that he is suspicious? [3]
(g) Translate οὕτως ἀπεκρίνατο...παρέχειν (lines 7-8). [3]
(h) What are we told about the slave girl in lines 10-11? [3]
(i) What does the slave girl do when Euphiletus orders her to tell him what had been happening (line 12)? [1]

[Total for Question 3: 20]

4) Translate the following sentences into Greek. Some of the words from questions 2 and 3 may help you:

- (a) The men lead the women into the field.
- (b) The slave girls were making a noise.
- (c) The stupid neighbours were trusting the allies.
- (d) The boys want to commit outrages against the heralds.
- (e) But then they learnt the truth.

[Total for Question 4: 20]

5) Translate the following passage into English: **write your translation on alternate lines.**

Cleisthenes, the king of Sicyon, seeks a husband for his daughter Agariste. Hippocleides the Athenian is the best candidate until he disgraces himself.

τῷ δὲ Κλεισθένει τῷ Σικυῶνος βασιλεῖ ἐγένετο θυγάτηρ, Ἀγαρίστη ὀνόματι. καὶ ταύτην ἠθέλησεν δοῦναι τῷ τῶν Ἑλλήνων πάντων ἀρίστῳ ὡς γυναῖκα. τοῦτο οὖν τὸ κήρυγμα ἐποιήσατο; “εἰ Ἑλλήνων τις βούλεται τοῦ Κλεισθέου γαμβρὸς εἶναι, δεῖ αὐτὸν πορεύεσθαι εἰς Σικυῶνα.” πολλοὶ οὖν ἀφίκοντο καὶ μάλιστα ἤρεσκεν τῷ Κλεισθένει ὁ Ἴπποκλείδης ὁ Ἀθηναῖος. ἐπεὶ δὲ ἡ ἡμέρα ἐγίγνετο τοῦ γάμου, ἀπέκτεινε πολλοὺς βούς ὁ Κλεισθένης καὶ ἔπιε πολὺν οἶνον ὁ Ἴπποκλείδης. ἔπειτα δὲ ἐκέλευσε τὸν αὐλήτην αὐλεῖν καὶ αὐτὸς ὠρχεῖτο. ὁ δὲ Κλεισθένης τοῦτο ὀρώων ὠργίζετο ἀλλὰ ὁ Ἴπποκλείδης ἐν τραπέζῃ τινὶ πρῶτον μὲν ὠρχήσατο, ἔπειτα δὲ, ἐρείσας τὴν κεφαλὴν ἐπὶ τὴν τράπεζαν, τοῖς σκέλεσι ἐχειρονόμησεν. ὡς δὲ ταῦτα εἶδεν ὁ Κλεισθένης, “ὦ ἄνθρωπε,” ἔφη, “ἀπαρχήσω τὸν γάμον.” ὁ δὲ Ἴπποκλείδης ἀπεκρίνατο, “οὐ φροντὶς Ἴπποκλείδῃ.”

τὸ κήρυγμα	proclamation	ὠρχέομαι, ὠρχησάμην	I dance
ὁ γαμβρὸς	son-in-law	ἡ τράπεζα	table
ἀρέσκω	I please (+ dative)	ἐρείδω, ἤρεια	I lean
ὁ γάμος	marriage	τὸ σκέλος	leg
πίνω, ἔπιον	I drink	χειρονομέω	I beat time
ὁ αὐλήτης	piper	ἡ φροντὶς	matter of concern

[Total for Question 5: 20]

Eton College King's Scholarship Examination 2003

SCIENCE (SECTION 1)

(60 minutes)

Candidate Number: _____

INSTRUCTIONS

Write your candidate number not your name in the space provided above.

You should attempt ALL the questions. Write your answers in the spaces provided: continue on a separate sheet of paper if you need more space to complete your answer to any question.

Allow yourself about 12 minutes for each question.

The maximum mark for each question or part of a question is shown in square brackets.

In questions involving calculations, all your working must be shown.

For examiners' use only.

1	2	3	4	5	TOTAL

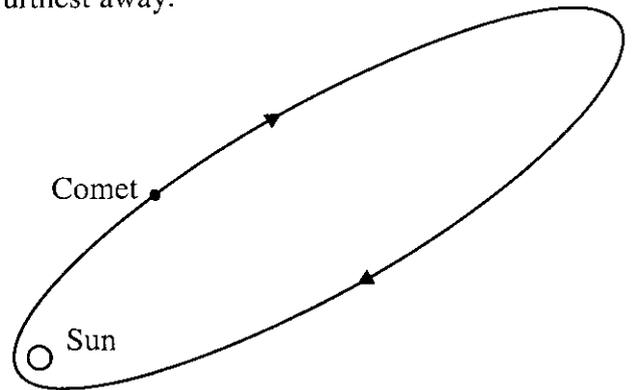
1. (a) Explain what keeps the planets in their orbits around the Sun.

[2]

(b) Comets travel around the Sun on very elongated “elliptical” orbits, as shown.

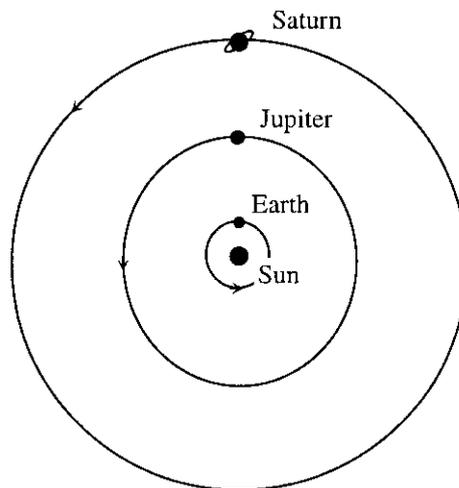
i) Draw a line on the comet to show the direction of the force on it. [1]

ii) Explain, by referring to this force, why the comet is travelling fastest when it is closest to the Sun, and slowest when it is furthest away.



[2]

The orbits of Earth, Jupiter and Saturn around the Sun are shown (not to scale). Jupiter takes 12 years to orbit the Sun and Saturn takes 30 years. It is May, and the planets are in the positions shown, with Jupiter and Saturn clearly visible very close to each other in the night sky.



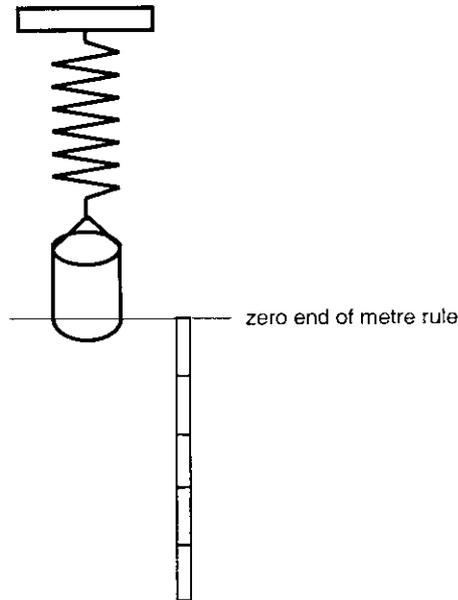
(c) Why will it be very difficult to see either planet in November?

[1]

- (d) i) In 30 years' time, which month would be best to observe Saturn? _____ [1]
- ii) Mark on the diagram where Jupiter will be then. Label this "J1". [1]
- iii) Which month would be best for observing Jupiter in 30 years' time? _____ [1]
- (e) Jupiter and Saturn will gradually move apart in the sky because their orbits take different times. How many years will it be until they are right next to each other in the sky again? Mark their approximate positions on the diagram (using "J2" and "S") when this next happens. You may wish to use the space below for working.

Answer: _____ [3]

2. A scholarship candidate was experimenting with an empty baked-bean can suspended from the end of a spring as shown in the diagram. He carefully arranged a metre rule, positioning the zero end level with the bottom of the empty can.



- (a) What precaution could he have taken to ensure that the bottom of the can was at the same level as the zero mark on the metre rule?

[1]

He poured a little sand into the can and noticed that it bobbed up and down for some time before coming to rest with the bottom of the can level with the 2 cm mark on the ruler.

- (b) Why did the can bob up and down?

[2]

- (c) What stopped the can bobbing up and down?

[1]

- (d) Why did the can come to rest in a lower position?

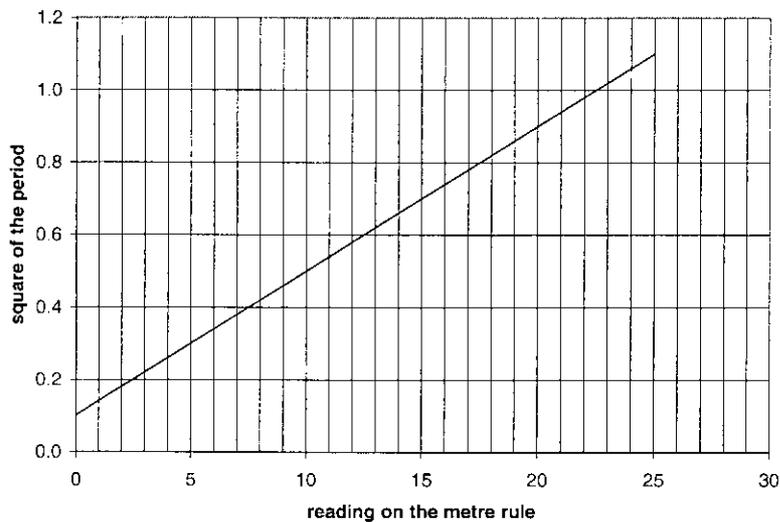
[1]

He poured more sand into the can and repeated the experiment. He noticed that both the time that it took to bob up and down once and the reading on the metre rule increased.

(e) Why do you think that the can was taking longer to bob up and down once?

[2]

His teacher suggested that he should plot a graph of the *square of the time* that the can took to bob up and down once (called the **period**) and the *reading on the metre rule*. His results are shown below.



His teacher had also suggested that the *square of the period* might be directly proportional to the *reading on the metre rule*.

(f) What is meant by 'proportional to'?

[2]

(g) Why do you think the graph does not pass through the origin?

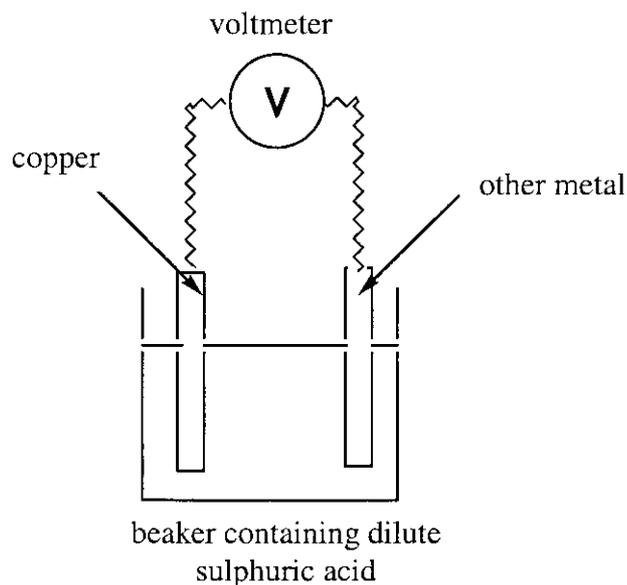
[1]

(h) Do you think that the graph shows the *square of period* to be directly proportional to the *reading on the metre rule*? Explain your answer.

[2]

3. The usual way of placing metals in a reactivity series is to add one metal to an aqueous solution of the sulphate of a second metal and to see whether or not a displacement reaction occurs.

A student was told that another way of placing metals in a reactivity series was to measure the voltage between two different metals placed in a beaker of sulphuric acid. A suitable apparatus is shown in the diagram.



- (a) In some experiments in which copper was always used as one of the metals, the following results were obtained.

Other metal	Reading on voltmeter (volts)
aluminium	2.00
iron	0.80
magnesium	2.70
zinc	1.10

Describe how these voltages are related to the position of the metals in the reactivity series shown below.

most reactive	magnesium	aluminium	zinc	iron	copper	least reactive
----------------------	-----------	-----------	------	------	--------	-----------------------

_____ [2]

- (b) Iron can be prevented from rusting by fixing a piece of magnesium metal to it. Using the information given above, explain how this prevents the iron from rusting.

_____ [2]

- (c) Two more experiments were performed with other metals; nickel gave a voltage of 0.60 volts and tin gave a voltage of 0.50 volts. Put copper, iron, nickel and tin into a reactivity series, starting with the most reactive.

Most reactive			Least reactive

[1]

- (d) Baked bean cans are made of iron and have a coating of tin on them. Use the information from part (c) to explain what happens to the iron if the coating of tin is scratched, exposing both metals to the contents of the can.

[3]

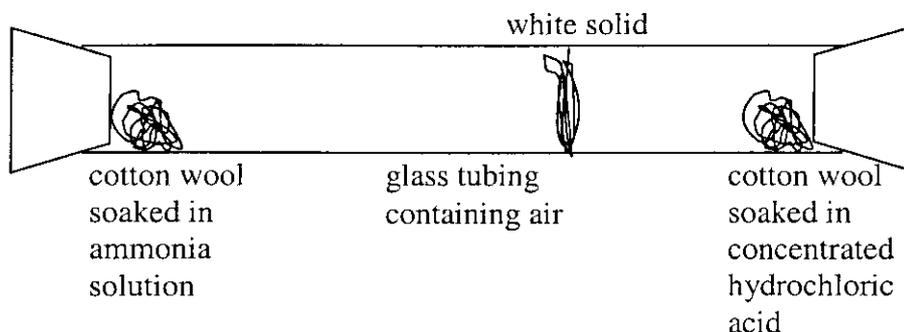
- (e) i) What would you expect to see if nickel powder was added to a solution of copper sulphate?

[2]

- ii) Write a word equation for the reaction, including state symbols.

[2]

4. Cotton wool pads soaked in ammonia solution or concentrated hydrochloric acid were placed in the apparatus below at the same time. The vapours from the ammonia solution and the concentrated hydrochloric acid reacted to form a white solid on the walls of the apparatus.



- (a) The vapours from ammonia and hydrochloric acid move rapidly, but the white solid took a few minutes to form after the apparatus was assembled. Explain why.

[2]

- (b) Which vapour diffused more quickly? Explain your answer.

[3]

- (c) A second identical experiment was done but this time the whole apparatus was placed in a refrigerator as soon as it had been assembled.

State and explain the effect that cooling the apparatus would have on:

- i) how fast the white solid formed;

[2]

- ii) the eventual position of the white solid in the tube.

[2]

(d) i) Ammonia solution is a weak alkali and hydrochloric acid is a strong acid. Suggest a likely pH number for each of them.

ammonia solution pH = _____ hydrochloric acid pH = _____ [1]

ii) Complete this sentence:

The white solid is a salt called ammonium _____ [1]

iii) What *type* of chemical reaction took place to form the white solid?

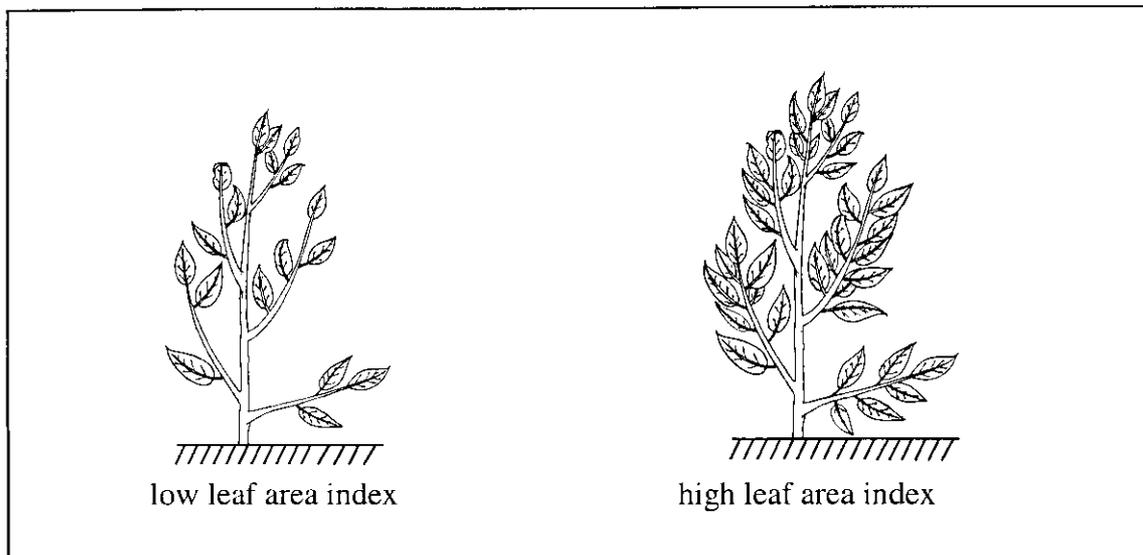
_____ [1]

5. Farmers and foresters find it important to know how fast a plant will grow and what factors affect its rate of growth.

(a) State two characteristics of a plant that will influence how fast it can grow:

1. _____
2. _____ [2]

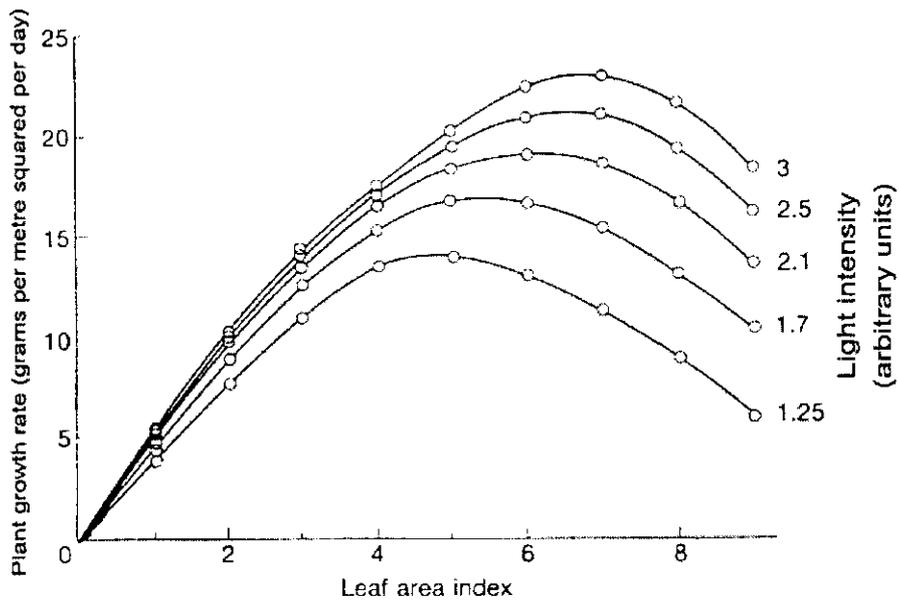
Plants produce a lot of leaves. The comparison between the total surface area of leaves on a plant and the area of ground that those leaves cover is called the **leaf area index**. So, for example, a plant with a leaf area index of 3 has a leaf area three times greater than the ground area that those leaves cover.



(b) How would you expect increasing leaf area index to affect plant growth rate? Explain your answer.

-
-
-
-
- [2]

An experiment was conducted on the clover plant *Trifolium subterraneum*. The aim of the experiment was to investigate the relationship between leaf area index, the light intensity that plants were exposed to and growth rate. A graph of the findings is given overleaf:



after Black 1963, from Begon, Harper and Townsend

(c) Explain the relationship between increasing light intensity and plant growth rate.

[2]

For any given light intensity there is an optimal leaf area index shown by the maximum plant growth rate achieved at that light intensity.

(d) Read off from the graph the optimal leaf area index under a light intensity of 2.1 arbitrary units and state this value below.

[1]

(e) Explain why plants with a very high leaf area index show lower than optimal growth rates.

[2]

(f) Describe and explain the trend between optimal leaf area index and increasing light intensity.

[3]

Eton College King's Scholarship Examination 2003

SCIENCE (SECTION 2 - DATA ANALYSIS)

(30 minutes)

Candidate Number: _____

For examiners' use only.

Total	
--------------	--

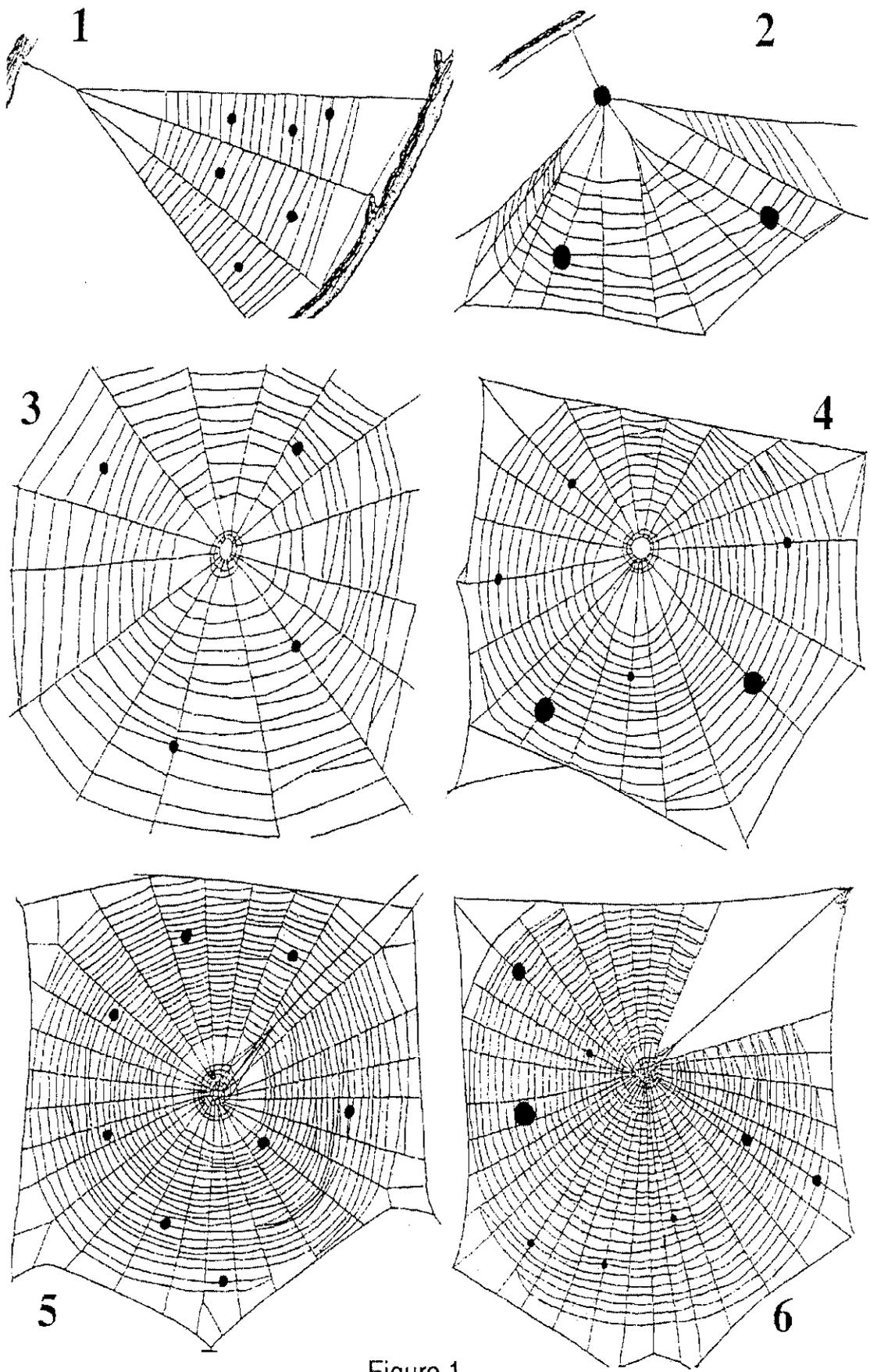
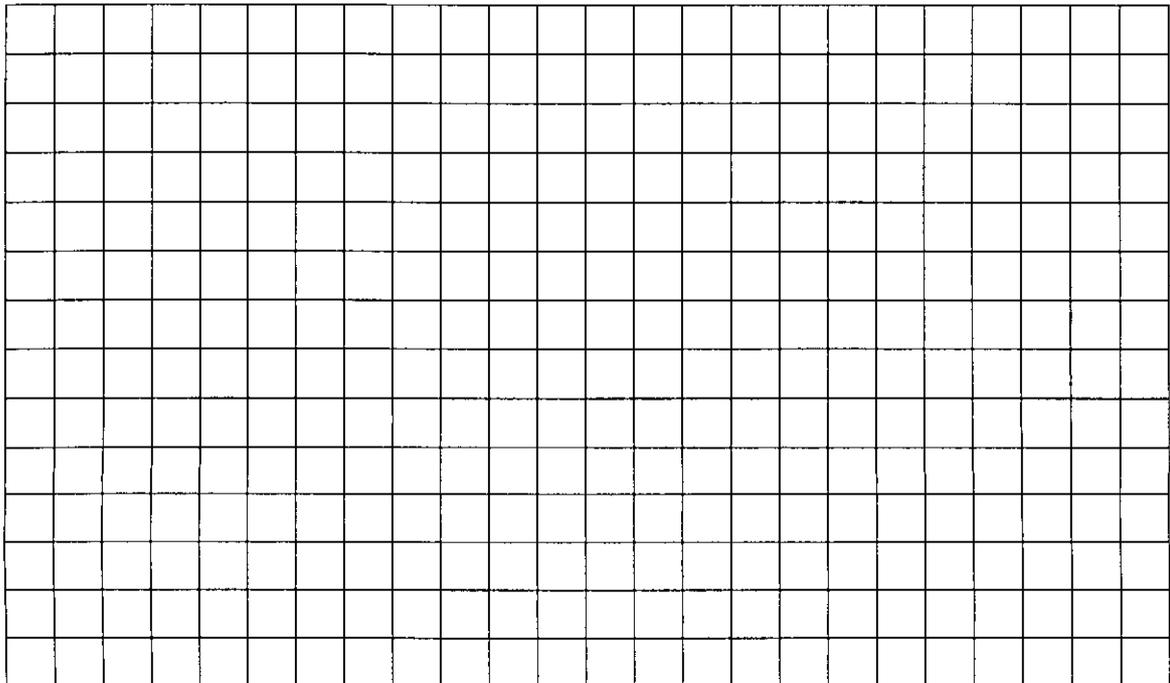


Figure 1

Look at Figure 1 opposite. It shows six spiders' webs (not drawn to scale) found at various locations in a garden. The black circles represent insects caught on the webs. The larger the circle, the larger the insect.

- (a) Count the number of insects caught in the spiders' webs and record the data in a table below. [3]

- (b) Represent the data in a suitable form on the squared area below. [4]



Biologists often estimate the population size in a large study area by using a small square sampling frame of a known size (often 0.5m x 0.5m, i.e. 0.25m²) to count the individuals at numerous locations throughout the area being studied. The photograph below shows two different sized frames.



(c) What is such a sampling frame called?

[1]

(d) Why is such a sampling frame only usually employed to count species which are relatively stationary (e.g. plants, woodlice, snails, etc.), rather than more mobile species such as insects?

[1]

(e) If the sampling frame were to be used to sample such a mobile population, what effect would this be likely to have on the estimate of the total population size?

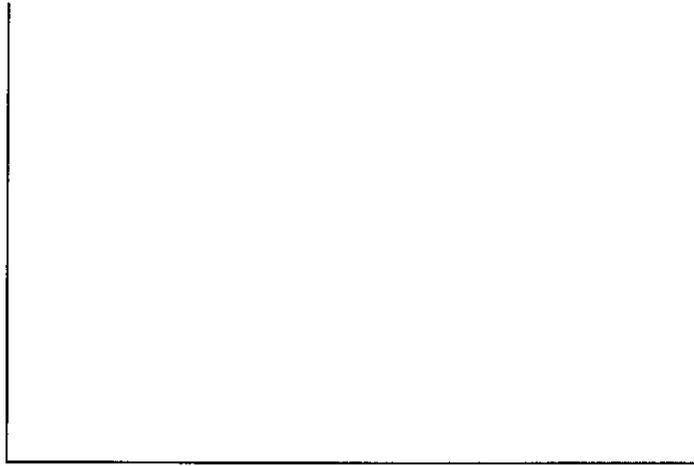
[1]

(f) Having used the sampling frame at a number of locations throughout the study area, what assumption does a biologist have to make before he can use his sample data to estimate the total number of individuals in the whole study area?

[1]

Square sampling frames of different sizes are available. They can be used to find the number of individuals of one species within a given sampled area, or to count the number of different species.

- (g) Sketch on the axes provided the relationship you would expect to find between the *side length of different sized sampling frames* and the *number of individuals* found within them. Make sure that you label the axes. [4]

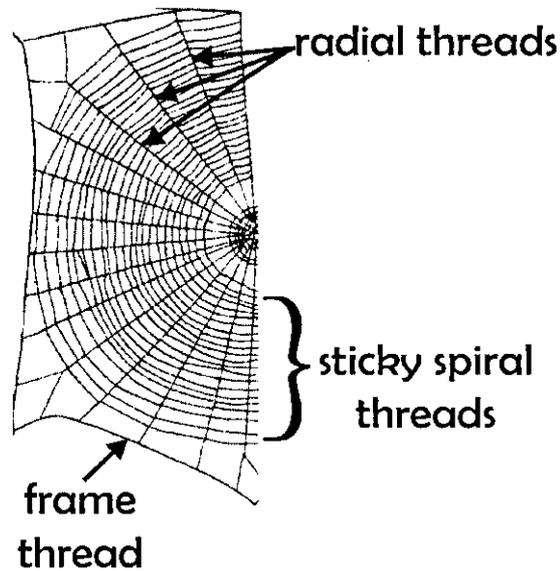


- (h) Sketch on the axes provided the relationship you would expect to find between the *area of sampling frames of varying size* and the *number of different species* found within them. Again, make sure that you label the axes. [4]



Some spiders use orb webs, made of a protein-rich silk, to catch flying insects. The web effectively acts like a stationary sampling frame to catch flying insects. As you can see from the diagram below, the web consists of three types of thread:

- 1) **frame threads**, which act as a surrounding support for the whole web,
- 2) **radial threads**, which converge on the centre of the web like the spokes of a wheel and act as a kind of scaffolding for the third type of thread, which are the
- 3) **sticky catching spiral threads**, made sticky with a glue to which insects adhere.

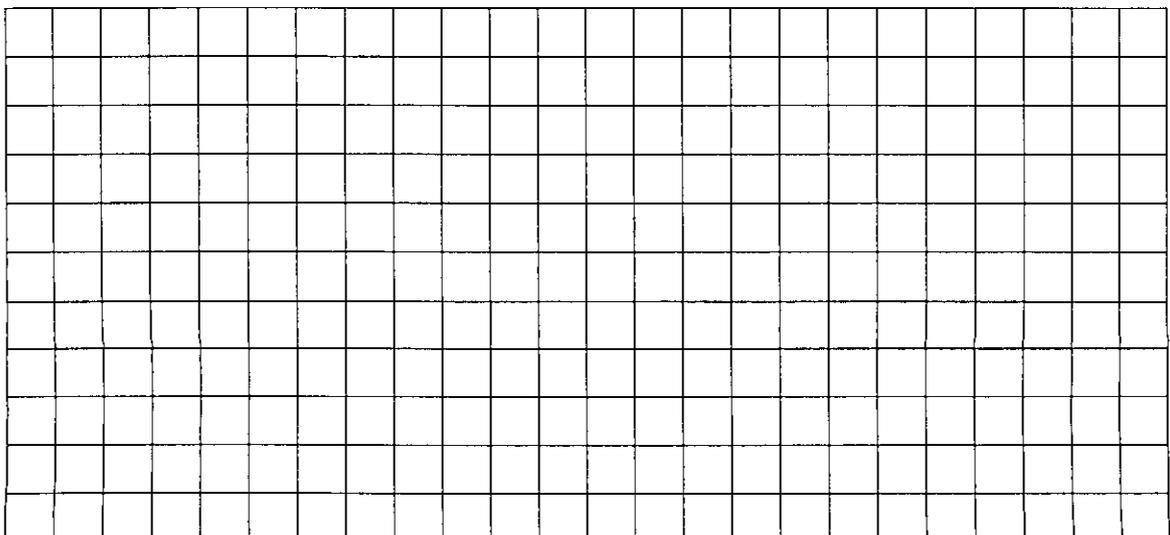


During one day, a biologist studied the differently sized webs of seven individuals of the Common Garden Spider (*Araneus diademata*). He counted the number of prey caught per web in relation to the number of radial threads used by each spider. His data are given in the table below:

No. of radial threads per web	29	30	31	32	33	34	35
No. of insects caught per web in a day	2	4	6	10	8	6	4

(i) Plot the data on the squared area below.

[4]



(j) What else could the scientist have done to improve the reliability of his study?

[1]

(k) List three factors that should be considered before allowing a fair conclusion to be reached about the effectiveness of webs built with various numbers of radial threads.

[3]

(l) Assuming that it is fair to compare the data in the table, suggest an explanation for the relationship between the number of insects caught and the number of radial threads.

[1]

(m) Garden Spiders usually build a new web every day, whereas some spiders make do with a web for a number of days. Suggest two reasons why some species may find it necessary to rebuild their web on a daily basis whilst others may not.

[2]

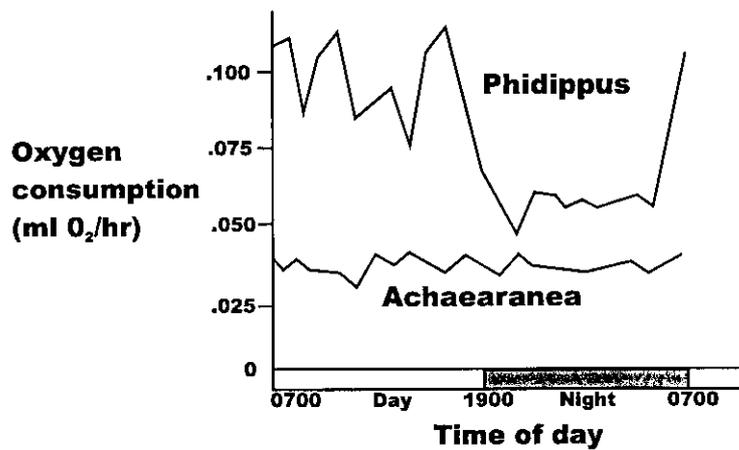
(n) Garden Spiders eat their own webs before rebuilding them. Suggest one reason why they do this.

[1]

(o) Garden Spiders usually build their webs in the early morning (i.e. between 2 am and 5 am). Suggest two reasons why such behaviour may be advantageous.

[2]

Some species of spider do not build webs and wait for their prey to come to them, but instead actively hunt for their prey. The diagram below shows the oxygen consumption of two spiders from different species over a 24-hour period. The top trace is for a day-active jumping spider called *Phidippus*, and the bottom trace is for a web-spider called *Achaearanea*.



adapted from Anderson, 1970

(p) Describe the differences between the oxygen consumption of the two species.

[3]

(q) Explain why oxygen consumption is higher in *Phidippus* rather than *Achaearanea*.

[2]

(r) What other information would you need to know before coming to a judgement on which of the two hunting strategies, 'active pursuit' or 'lying-in-wait', was the most effective at catching prey?

[2]

Eton College King's Scholarship Examination 2003

MATHEMATICS B

(One and a half hours)

Answer as many questions as you can. Each of the ten questions carries ten marks. Show all your working. Calculators are not allowed.

1. (a) Write the following in ascending order:

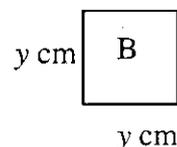
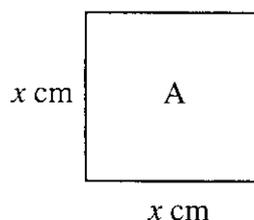
(i) $\frac{7}{10}$ $\frac{5}{6}$ $\frac{1}{2}$ $\frac{2}{3}$ $\frac{3}{5}$

(ii) $2\sqrt{10}$ 7 $3\sqrt{5}$ $5\sqrt{2}$ $4\sqrt{3}$

- (b) Find two whole numbers which are not multiples of 10 and which multiply together to give 100 000.

2. (a) If $x + y = 20$ and $x - y = 14$ then find $x^2 - y^2$.

- (b) Two squares A and B, with side lengths x cm and y cm respectively, are shown below.



The sum of the perimeters of the two squares is 56 cm. The area of A is 56cm^2 bigger than the area of B.

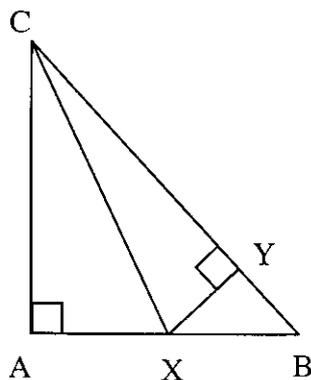
- (i) Write down two equations involving x and y .
(ii) Solve these to find x and y .

3. A number of matchsticks are arranged to enclose a square. Eight matchsticks are then added, and together with the original matchsticks are rearranged to enclose a rectangle whose length is five times its breadth. The area of this rectangle is $\frac{1}{5}$ of the area of the original square. Find the original number of matchsticks.

4. (a) If $x + 3 = 0$ then find the value of $x^2 + 3x + 5$.
 (b) If $x^2 + 2x + 5 = 0$ then find the values of
 (i) $x^3 + 2x^2 + 5x + 7$
 (ii) $x^3 + 3x^2 + 7x + 8$
5. If $x_2 = \frac{1}{1 + \frac{1}{x_1}}$, $x_3 = \frac{1}{1 + \frac{1}{x_2}}$, $x_4 = \frac{1}{1 + \frac{1}{x_3}}$ etc. then :
 (a) Show that $x_2 = \frac{x_1}{x_1 + 1}$.
 (b) Find x_3 and x_4 in terms of x_1 , leaving your answers in their simplest forms.
 (c) Find x_{10} as a fraction, given that $x_1 = 2$.
6. (a) By considering $(x - y)^2$ prove that, for all numbers x and y , $x^2 + y^2 \geq 2xy$.
 (b) Use part (a) to prove that $(x + y + z)^2 \leq 3(x^2 + y^2 + z^2)$ for all numbers x , y and z .
7. A man who can swim at 3km/h in still water swam one kilometre upstream and one kilometre back when the water was flowing at v km/h.
 On another day, when the stream was flowing at $2v$ km/h, another man, who can swim at 4 km/h in still water, also swam one kilometre upstream and one kilometre back.
 The two men took the same time to complete their journeys.
 (a) Write down an expression in terms of v for the time taken by each man.
 (b) Put these two expressions equal to one another to find the value of v^2 .
 (c) Use this to find how long, in minutes, each man took for his journey.

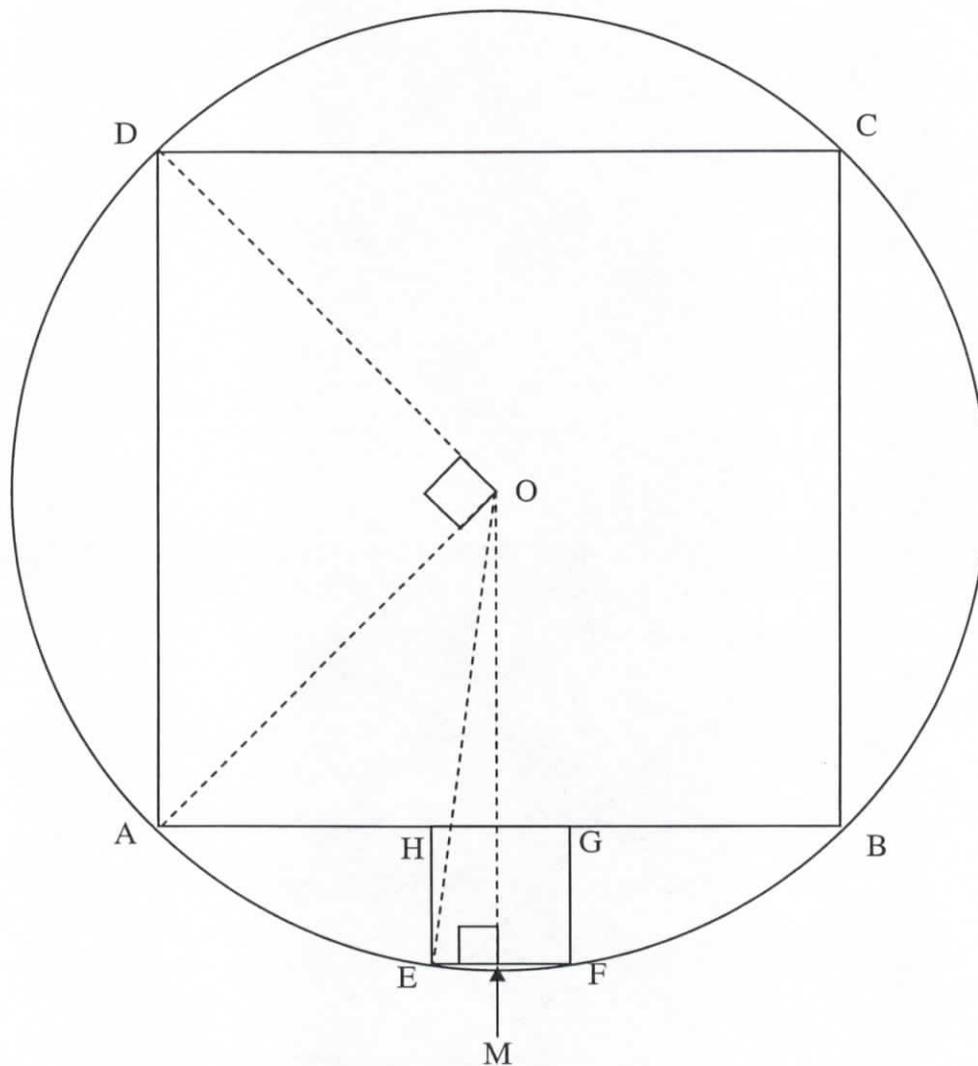
8. (a) (i) Express $\frac{1}{a} + \frac{1}{b}$ as a single fraction.
(ii) Expand $(a+b)^2$.
- (b) Two numbers a and b are such that $a+b=10$ and $ab=5$. Find the value of the following:
(i) $\frac{1}{a} + \frac{1}{b}$
(ii) $a^2 + b^2$
(iii) $a^3 + b^3$.

9. In the diagram shown below (which is not drawn to scale) ABC is a right-angled triangle with $AC = 4$ and $AB = 3$. X is the point on AB such that $AX = 2$. Y is the point on BC such that XY is at right angles to BC.



- (a) Find the area of triangle ABC.
(b) Find the length BC.
(c) Find the area of triangle XBC.
(d) Hence, or otherwise, calculate the length XY as a fraction.
(e) Calculate also the height of Y above AB as a fraction.

10. The diagram below (which is not drawn to scale) shows a square ABCD and a circle of radius $\sqrt{50}$, whose centre is O. The square is drawn so that A, B, C and D lie on the circle. In the region between the side AB and the circle, another square, EFGH, is drawn, as shown in the diagram. EFGH is the largest square that can be drawn in this region. M is the midpoint of the straight line EF.



- Use Pythagoras' theorem in the triangle AOD to find the side length of the larger square.
- If the side length of the square EFGH is $2n$ then write down an expression for the length of OM in terms of n .
- Use Pythagoras' theorem on the triangle EMO to find an equation involving n .
- Solve this equation to find n .

Eton College King's Scholarship Examination 2003

HISTORY AND GEOGRAPHY

(One and a half hours)

Answer THREE questions, AT LEAST ONE to be chosen from each section.

SECTION 1: HISTORY

1. Was the Norman Conquest a 'Good Thing' for England?
2. Why did King John face so many problems with his barons?
3. Did the Hundred Years War hold more dangers than rewards for a medieval king?
4. How and why was Henry VII able to bring peace and stability to England after almost a century of dynastic conflict?
5. 'Not before the reign of Elizabeth I can England be regarded as a Protestant nation'. Do you agree with this statement? Explain your answer.
6. Why was the English Republic so short lived?
7. What was 'glorious' about the Revolution of 1688?
8. How important were its colonies to Britain in the eighteenth century?
9. At which of the following points in the nineteenth century did Britain come closest to revolution : 1815 – 1819 **or** 1828 – 1832 **or** 1842 – 1848? Explain your answer.
10. Why did the British government come to view Germany as the principal threat to its interests by 1914?

Either

11. How important is it for schoolchildren to study the history of their own country?

or

12. How might the problems facing a historian investigating the very recent past be different from those facing a historian investigating the distant past?

SECTION 2: GEOGRAPHY

1. What can the geographer contribute towards a greater understanding of the problem of acid rain?
2. Discuss the importance of rock type in the evolution of landscape.
3. To what extent is unfavourable geography responsible for the plight of the less developed world?
4. Give a reasoned account of the pattern shown in figure 1 (below). Note that in 1991 the census category 'non-white' accounted for 4% of the UK population as a whole.

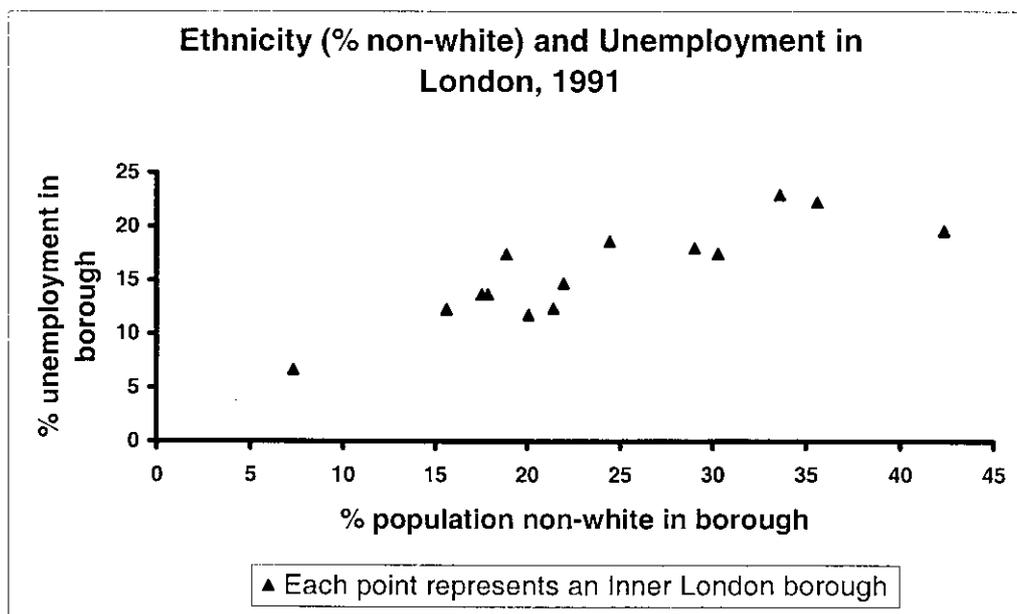


Fig. 1

5. How much is the private car to blame for the problems of rural Britain today?
6. What are your views, as a geographer, on the possible advantages and disadvantages to London of its hosting the 2012 Olympics?
7. An internet search in early 2003 yielded a dozen websites attempting to prove that "the end of Geography" was imminent. What does this phrase mean to you?
8. In the study of major river floods (e.g. Central Europe, summer 2002), which is more important: physical or human geography?

9. Figure 2 (below) shows the percentage of the labour force involved in various sectors of the economy in two unnamed countries (1995).

	Primary Industry	Secondary Industry	Tertiary Industry
Country A	2	32	66
Country B	57	10	33

Fig. 2

- (a) Identify which country is likely to be the more developed, and explain your choice.
- (b) Explain what shifts might you expect to see in Country B over the next fifty years.
10. The US Geological Survey (USGS) has asked you to produce an updated hazards map for a volcanic area that you have studied. Describe the details that you would need to include, and explain how they might be transferred onto an effective map.

