

Eton College King's Scholarship Examination 2006

GENERAL 1

(One hour and thirty five minutes)

Answer all the questions. Each question is worth 25 marks.

You are permitted 10 minutes' reading time before starting this paper. It is recommended that you use this time to familiarize yourself with the outline of the questions rather than trying to work out any of the answers in detail.

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 20 minutes you are advised to leave it and go on to another. Return to any unfinished question if you have time left at the end of the paper.

[Question 1 begins overleaf]

1. According to the law, theft is the dishonest appropriation of property belonging to another with the intention of permanently depriving the other of it.

In deciding whether someone accused of theft acted dishonestly, the Crown Prosecution Service suggests that these two questions need to be considered: firstly, according to the ordinary standards of reasonable and honest people, was what was done dishonest? Secondly, if it was dishonest by those standards, did the accused realise that reasonable and honest people would regard his conduct as dishonest? If the answer to either of these two questions is no, a prosecution will fail.

Any assumption by a person of the rights of an owner amounts to an appropriation. It is not necessary to prove that the appropriation was without the owner's consent. An appropriation will take place as an objective fact irrespective of whether the owner authorised or consented to the appropriation.

Property is regarded as belonging to any person having possession or control of it, or having in it any ownership right or interest. If a person receives property from or on account of another and he is obliged to retain and deal with it in a particular way, the property still belongs to that other person. Property that has been abandoned cannot be stolen.

In no more than 100 words for *each* case, write the opening lines of the defending lawyer's speech to the court, presenting a summary of the case for the accused in each of these two situations. Each case carries the same number of marks.

- (a) An elderly gentleman leaves his favourite London restaurant. He realises that it is still raining hard and returns inside for his umbrella. Unable to find the umbrella with which he arrived, he takes another from the stand by the door. His action is seen and noted by another diner who merely returns to his lunch. The waiter, however, observes the taking of the umbrella from his seat in the kitchen and reports the matter to the police. On arriving home, the elderly gentleman notices that, quite by chance, the umbrella in fact belonged to his wife. He had been looking for it for months.
- (b) Augustus is an Etonian. Returning from games one afternoon, he notices apples in the garden of the Master in charge of his boarding house. They have fallen from the branches of an apple tree growing in the neighbouring orchard. All boarding houses and their gardens at Eton are the property of the school. The neighbour, Mr Smith, is a cider maker living and working in Eton. He has no connection with the school. Augustus picks up an apple, intending to give it to the Master. Back at the house, he is unable to find him and he eats the apple in his room. Mr Smith telephones the police to report the incident.

[Total 25]

2. A Venn diagram is a drawing in which marked-out areas represent groups of items sharing common properties. The drawing usually consists of two or more circles, each representing a specific group. Venn diagrams are useful for representing and solving various types of logic problem, such as categorical syllogisms.

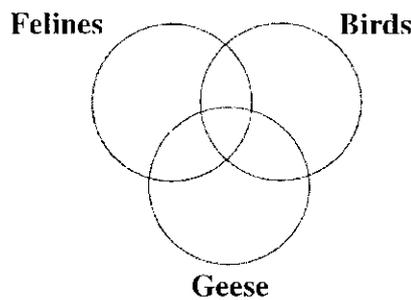
A categorical syllogism is an argument consisting of three statements - the last of which is a conclusion - in which there appear a total of three categorical terms, each of which appears twice.

Consider, for example, the following categorical syllogism:

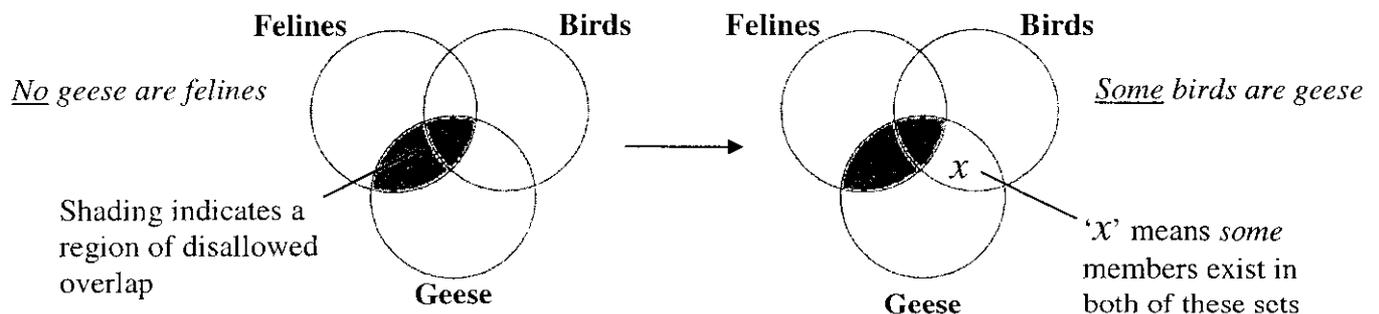
No geese are felines.
Some birds are geese.
Therefore: *Some birds are not felines.*

The categorical terms are *geese*, *felines*, and *birds*. The conclusion of this syllogism is '*Some birds are not felines*'.

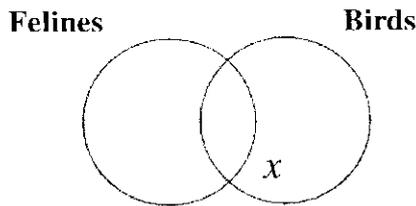
We can use a Venn diagram to determine whether or not the conclusion is valid. First we draw three overlapping circles and label them to represent the categories of the syllogism:



Next, on this framework, we indicate the statements of the syllogism:



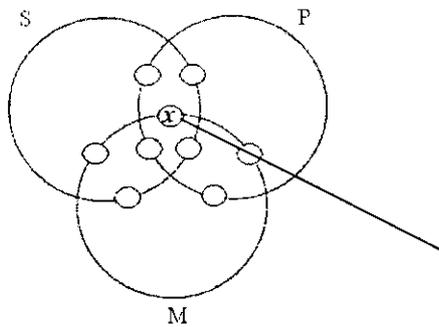
To determine whether or not the conclusion is valid, we look only at the regions of our Venn diagram corresponding to the categories present in the conclusion itself. If the conclusion is valid, then it will be apparent in our drawing:



In this case the conclusion is valid, as the position of the 'x' indicates that some birds are indeed not felines.

Venn diagram notation

In the examples and questions that follow, the categories will be 'S', 'P' and 'M'. The three examples below show how a Venn diagram would be used to represent various statements.



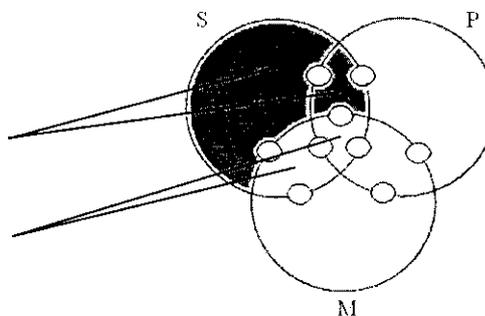
Example 1: Some S is P (= Some P is S)

This diagram can be described by two exactly equivalent statements. Although we know that some S is P, we do not know whether or not it is also M. Therefore we must place our 'x' (which represents 'some') on the boundary. The circles on the boundary points are to make it clearer to see when an 'x' has been added to such a position.

Example 2: All S is M

The shaded regions indicate that no members exist in these areas.

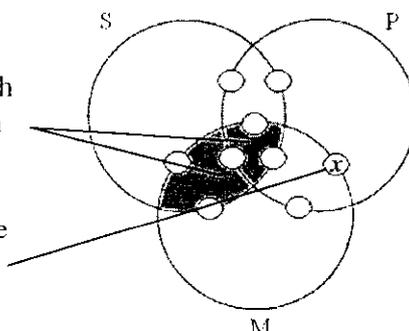
The only way it is possible to be S in this diagram is by also being M.



Example 3: No S is M (= No M is S), and Some P is not S

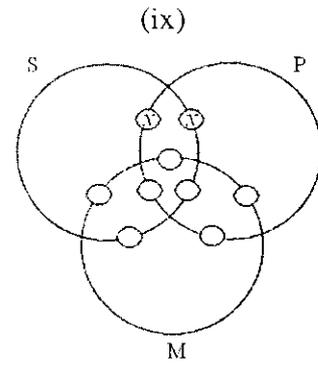
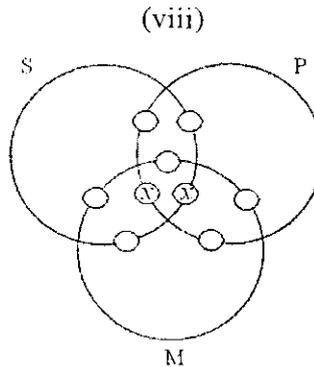
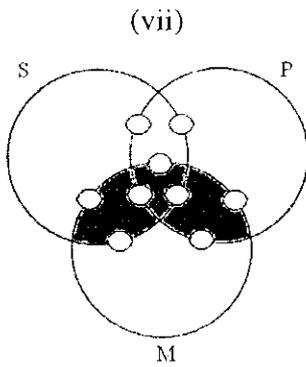
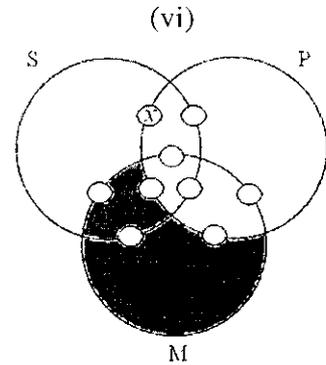
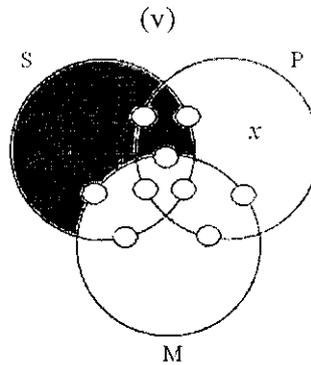
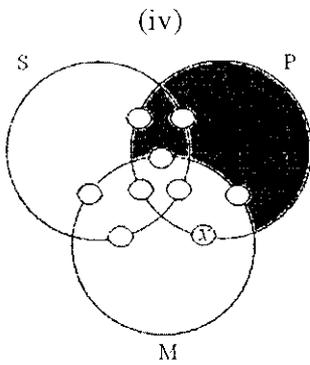
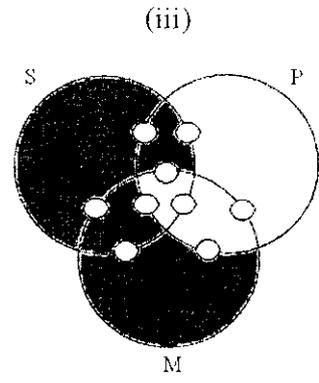
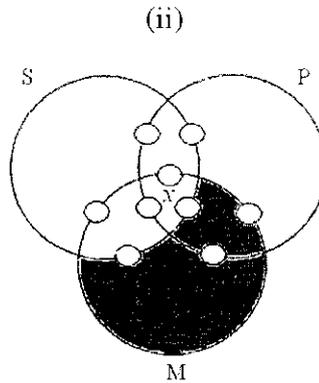
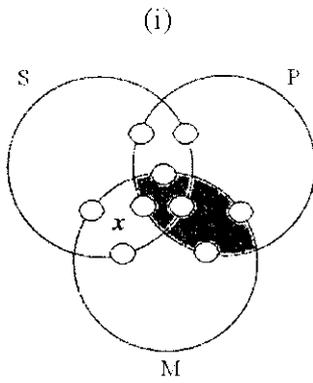
In this case, the first statement can be written in two ways, which are exactly equivalent. The shading shows that no members can exist in these regions of overlap.

If we know that some P is not S, we must use an 'x'. We use the boundary circle for the same reasons seen in example 1; we do not know whether these members are or are not M.



(a) Below are nine Venn diagrams, labelled (i) - (ix). Write down the two statements that each diagram represents.

[9]



Assessing Validity

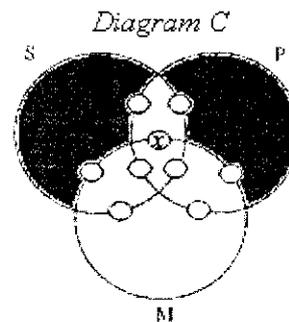
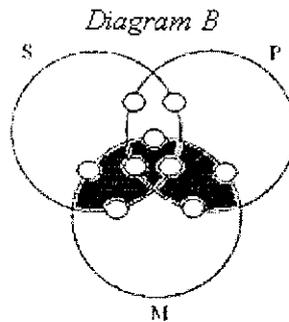
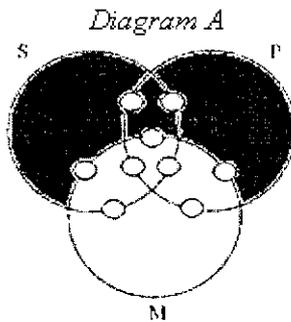
It will be recalled that a Venn diagram can be used to determine the validity of a conclusion. If a conclusion is valid, it will be shown by the diagram. Only conclusions that have been absolutely proved by the diagram are said to be valid.

A conclusion is invalid if it has not been proved by the diagram; in these questions, 'possibly valid' should be considered to mean the same as 'invalid'.

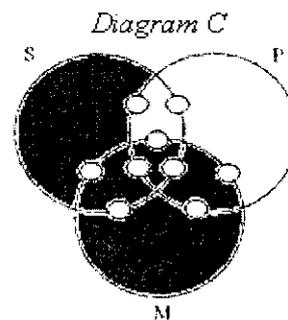
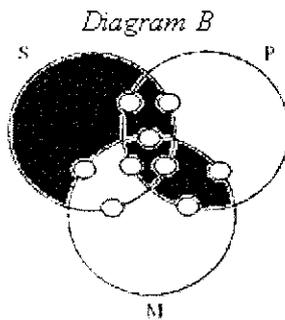
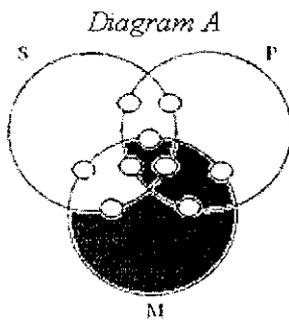
(b) In each of the eight questions that follow, you will be given two statements and a conclusion. For each question you must state two things: which of the three Venn diagrams (A, B or C) is the correct representation of the two statements, and whether the conclusion is valid or invalid.

[16]

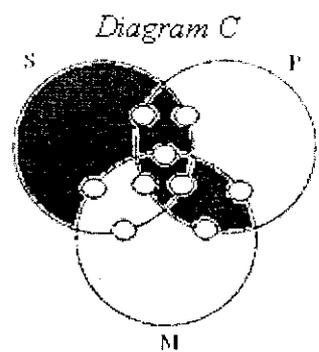
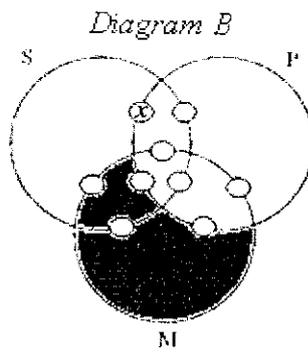
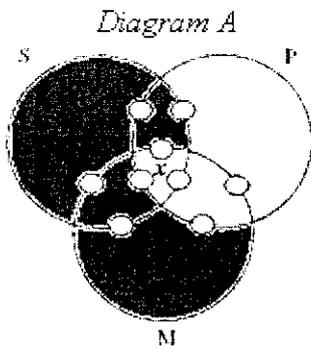
- (i) All P is M
 All S is M
 → Some S is P



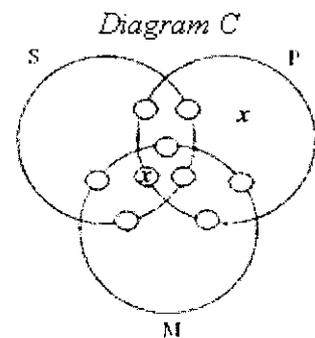
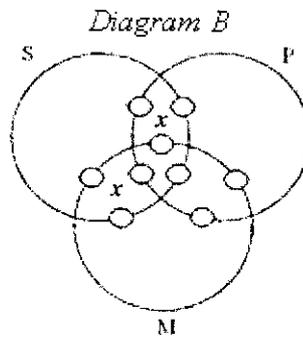
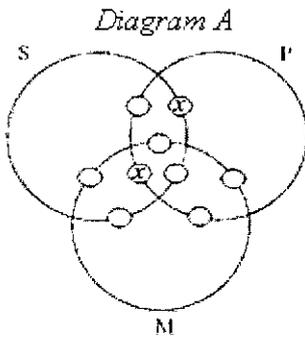
- (ii) No P is M
 All M is S
 → All S is P



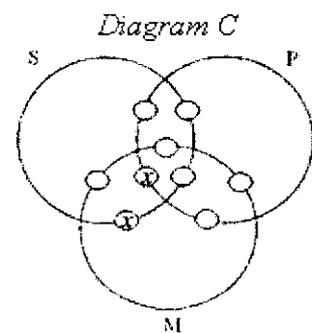
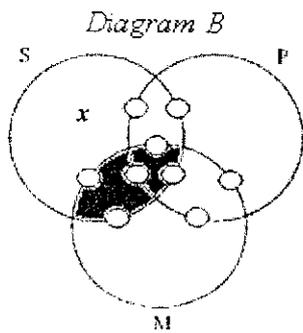
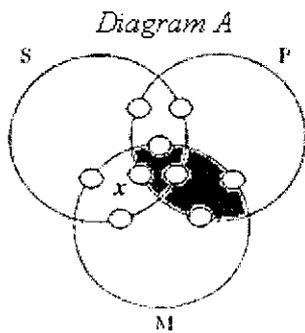
- (iii) All M is P
 Some S is not M
 → All S is P



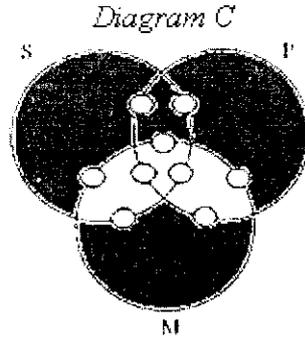
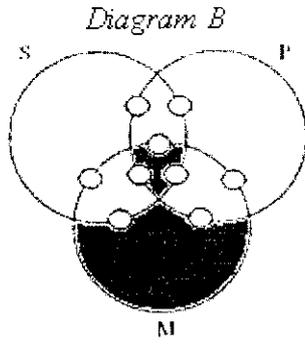
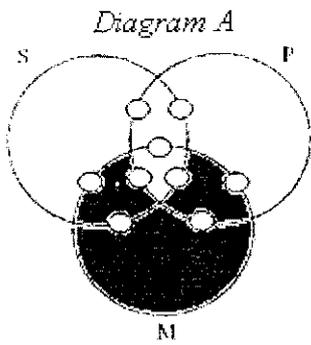
- (iv) Some P is not M
 Some S is M
 → Some S is not P



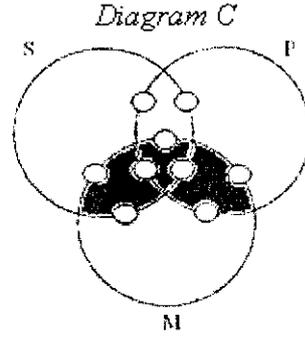
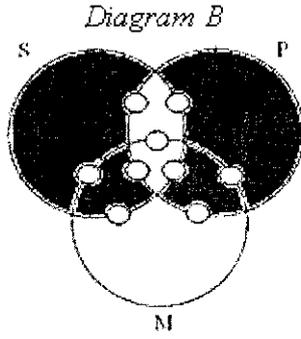
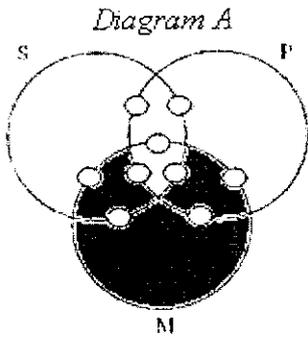
- (v) Some M is not P
 Some S is M
 → No S is P



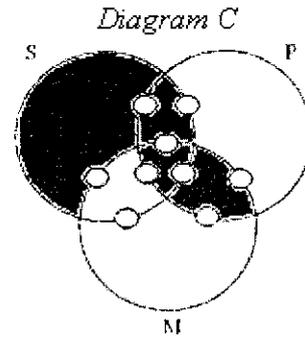
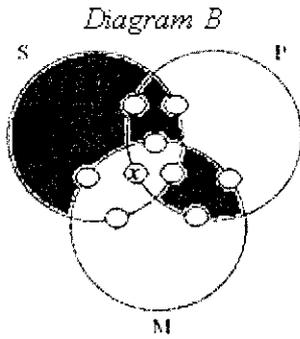
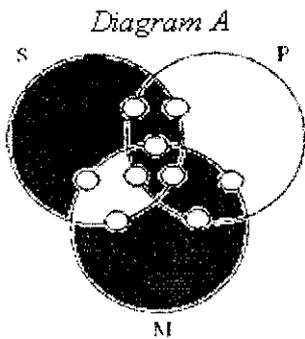
- (vi) All M is P
 All M is S
 → Some S is P



- (vii) No M is P
 No M is S
 → All S is P



- (viii) No P is M
 All S is M
 → No S is P



[Total 25]

3. Read this passage and then answer the questions which follow:

Now, society between human beings, except in the relation of master and slave, is manifestly impossible on any other footing than that the interests of all are to be consulted. Society between equals can only exist on the understanding that the interests of all are to be regarded equally. And since in all states of civilisation, every person, except an absolute monarch, has equals, every one is obliged to live on these terms with somebody; and in every age some advance is made towards a state in which it will be impossible to live permanently on other terms with anybody. In this way people grow up unable to conceive as possible to them a state of total disregard of other people's interests. They are under a necessity of conceiving themselves as at least abstaining from all the grosser injuries, and (if only for their own protection) living in a state of constant protest against them. They are also familiar with the fact of co-operating with others and proposing to themselves a collective, not an individual interest as the aim (at least for the time being) of their actions. So long as they are co-operating, their ends are identified with those of others; there is at least a temporary feeling that the interests of others are their own interests. Not only does all strengthening of social ties, and all healthy growth of society, give to each individual a stronger personal interest in practically consulting the welfare of others; it also leads him to identify his feelings more and more with their good, or at least with an even greater degree of practical consideration for it. He comes, as though instinctively, to be conscious of himself as a being who of course pays regard to others. The good of others becomes to him a thing naturally and necessarily to be attended to, like any of the physical conditions of our existence. Now, whatever amount of this feeling a person has, he is urged by the strongest motives both of interest and of sympathy to demonstrate it, and to the utmost of his power encourage it in others; and even if he has none of it himself, he is as greatly interested as any one else that others should have it.

(378 words)

(from John Stuart Mill's *Utilitarianism*, 1863)

- (a) Summarise the passage in about seventy words. [10]
- (b) This extract is taken from an essay published in 1863. In 1987 the British Prime Minister, Margaret Thatcher, declared that 'there is no such thing as society. There are individual men and women, and there are families.'

Which view – Mill's or Thatcher's – do you think is the closest reflection of modern society? Argue your case clearly and provide examples to illustrate your points. [15]

[Total 25]

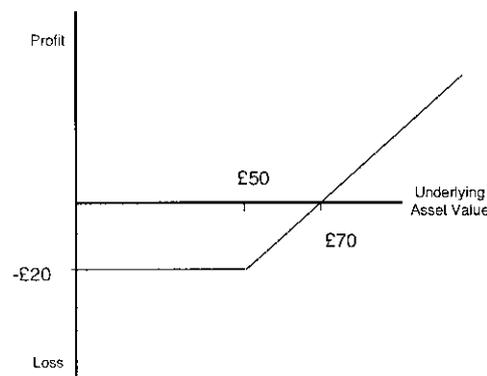
4. In the City of London, traders buy and sell options. An **option** is a contract that confers upon the buyer the right, but not the obligation, to buy or sell an asset at a given price on or before a given date. The asset which the option gives its owner the right to buy or sell is called the **underlying asset**.

The right to buy the underlying asset is known as a **call option** and the right to sell it is known as a **put option**. The rights to buy (for a call) or sell (for a put) are held by the person buying the option. The person selling an option is obliged to make (in the case of a call option) or take (in the case of a put option) delivery of the underlying asset when the option is exercised.

The price at which an option can be exercised is referred to as the **exercise price**. The buyer of the option will have to pay a **premium** to the seller in order to obtain the right to buy or sell the asset at the exercise price. The **premium** represents the value of the option when it is taken out. The last date on which an option can be exercised is known as its **expiration date**.

Pay-off diagrams can be drawn as graphs to show the possible profits and losses from buying and / or selling options. They chart the profit and loss of the trade(s) on the y-axis against the value of the underlying asset on the x-axis.

If, for example, a trader were to buy a call option with an exercise price of £50 for a premium of £20, the pay-off diagram would be drawn in this way:



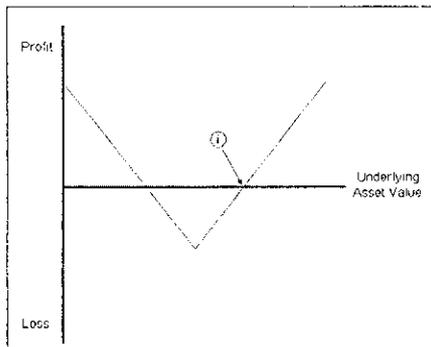
The maximum loss for the trader, if the price of the underlying asset remains below £50, is the £20 premium paid for the option. His profit, however, is potentially unlimited as he will be able to exercise his right to buy the underlying asset for £50, whatever its value. The **breakeven point** for the trade is the underlying asset value at which the trader will make neither a profit nor a loss. For this trade, it is £70. At that point, the trader will be able to buy the underlying asset, worth £70, for the exercise price of £50 and so to cover the £20 premium paid for the option.

The trading strategy known as the **straddle** involves buying and selling various puts and calls based on the same underlying asset.

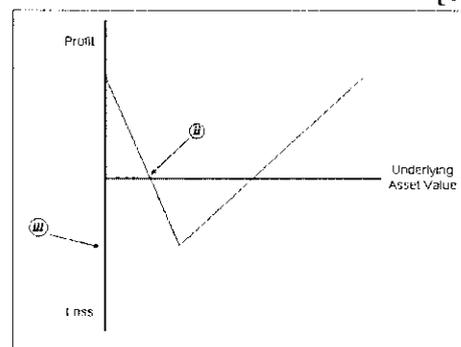
In questions (a), (b) and (c) below, the options will have the same expiration date and the premiums for the call and put options will be £8 and £12 respectively.

- (a) Match three of the following four straddle trades to the pay-off diagrams shown below. None of the diagrams is drawn to scale.
- (i) The sale of one call option and one put option, both with an exercise price of £100.
 - (ii) The purchase of two put options and one call option, all with an exercise price of £100.
 - (iii) The purchase of one put option and one call option, both with an exercise price of £100.
 - (iv) The purchase of one put option with an exercise price of £100 and one call option with an exercise price of £120.

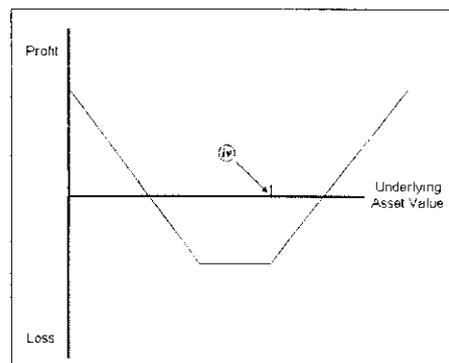
[6]



(Diagram A)



(Diagram B)



(Diagram C)

- (b) Give the values of the Roman numerals (i) – (iv) marked on the diagrams. [8]
- (c) Draw a pay-off diagram showing the profit and loss potential for the other straddle trade. Your diagram should make clear the profit, loss and breakeven points for the strategy and its potential financial rewards and / or losses. [4]

Option premiums consist of **intrinsic value** and **time value**. **Intrinsic value** for a call option is the amount by which the price of the underlying asset exceeds the exercise price; for a put option, it is the amount by which the exercise price of the option exceeds the price of the underlying asset. **Time value** is a function of probability and reflects the likelihood of further movements in the price of the underlying asset before the expiration date of the option.

A **short put trading position** means that a trader has sold a put option. Conversely, a **long put trading position** means that a trader has bought a put option.

In option trading, **delta** is defined as the rate of change in the premium of a call or a put option with respect to the change in price of the underlying asset.

- (d) Would you expect (i) a short put trading position and (ii) a long put trading position to have positive or negative deltas? Explain your answers.

[7]

[Total 25]

[End of Paper]

Eton College King's Scholarship Examination 2006

MATHEMATICS A

(One and a half hours)

Answer Question 1 and as many of the other five questions as you can.

Question 1 is worth 50 marks. All other questions are worth 10 marks each.

Show all of your working.

1. Compulsory Question

(a) (i) Increase £66 by 15%. [2]

(ii) Calculate the original price of an item selling at £79.20 in a "10% off" sale. [2]

(b) Simplify fully

(i) $(2x+1)(x-2)+2$, [2]

(ii) $\frac{8y^2-4xy^3}{2y}$, [2]

(iii) $2r-3(s-2r-(r-s))$. [2]

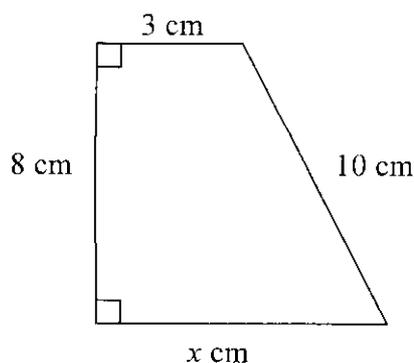
(c) (i) If I divided £810 in the ratio 2:3:4, what is the value of the smallest share? [2]

(ii) If $\frac{3}{5}$ of the pupils at a school are boys, what is the ratio of boys to girls? [2]

(d) Solve the pair of simultaneous equations

$$\begin{aligned} 3x-2y &= 12 \\ 2x+5y &= -11. \end{aligned} \quad [4]$$

(e) Considering the shape below,



(i) calculate the value of x, [2]

(ii) calculate the area of the shape. [2]

- (f) (i) Make m the subject of the formula $y = 2mx + c$. [2]
 (ii) Make x the subject of the formula $\frac{x-y}{2} = ax + b$. [3]
 (iii) Make g the subject of the formula $b = 2a\sqrt{\frac{g}{m}}$. [3]

(g) Factorise fully

(i) $10x^2yz^3 + 2xyz^2$, [2]

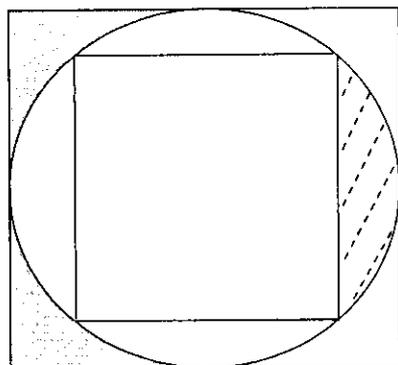
(ii) $\frac{6x^2}{5y} - \frac{3x}{10y^2}$. [2]

(h) Solve, leaving your answers in fractional form

(i) $6(3x + \frac{2}{3}) = \frac{2}{5}(x+1)$, [3]

(ii) $13 + x - \frac{2}{3} \geq -2x$. [3]

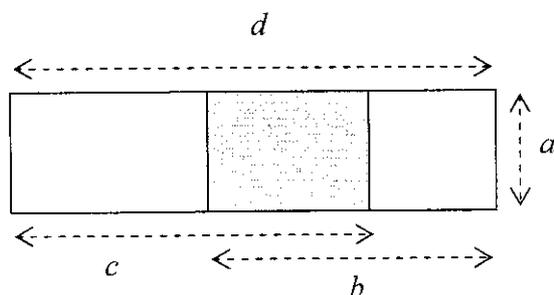
- (i) In the diagram below, which is NOT drawn to scale, the circle has a radius of 4 cm. It is inscribed inside a square and also has a square inscribed inside it as shown below.



- (i) Show that the area of the heavily shaded region is 6.87 cm^2 (to 2d.p.). [3]

- (ii) Calculate the area of the region marked with the dotted lines (to 2d.p.). [3]

(i)



- (i) Write down an expression, in terms of a , b , c and d , for the area of the shaded region. [3]

- (ii) Calculate this area, when $a=2$, $b=5$, $c=3$, $d=6$. [1]

2. A reservoir is to be made so that it will hold $3.2 \times 10^7 \text{ m}^3$ of water when full. A 1:200 scale model is built in order to make certain calculations.

- (a) When the model is full, the greatest depth is 18cm. What will be the greatest depth, in metres, of the reservoir? [2]
- (b) If the surface area of the water in the model is 300 cm^2 , calculate the corresponding surface area of the water in the reservoir, giving your answer in m^2 . [3]
- (c) What will be the volume, in m^3 , of water in the model when full? [2]
- (d) The volume of the reservoir was not given precisely at the start of the question. It was given to the nearest thousand cubic metres. Specially treated water is to be used to fill the reservoir, and it has a mass of 3.58×10^7 tonnes (this figure only being correct to 2 decimal places). Calculate the maximum density of the treated water, giving your answer in kg/m^3 and to 2 decimal places. [3]
 [Density = Mass / Volume, 1 tonne=1000 kg]

3. A 'perfect square' has the property that every row, column and diagonal add up to the same number, S .

- (a) Consider the square below.

8	a	b
c	6	5
d	e	f

By solving the equations

$$c + 6 + 5 = 8 + c + d$$

$$8 + 6 + f = b + 5 + f$$

$$d + 6 + b = S$$

or otherwise,

- (i) find the values of b , d , and S that make the square 'perfect', [3]

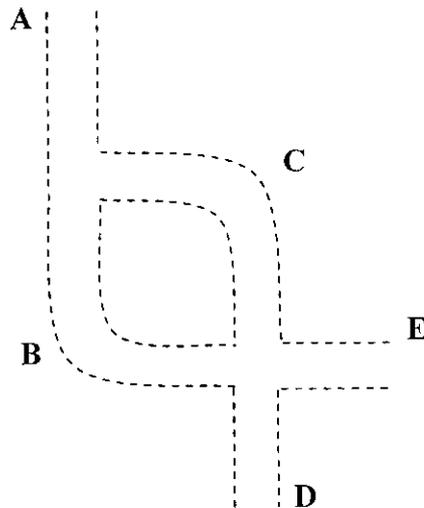
- (ii) complete the square. [2]

- (b) Find the values of p , q , r , s , t , and u that make the square below 'perfect'.

p	q	r
3	7	s
12	t	u

[5]

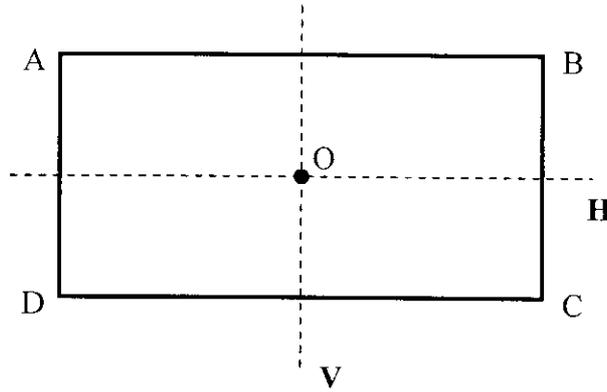
4. A rat is in the maze represented in the diagram below.



The rat wishes to go from point **A** to point **D**. When faced with a junction the rat is *three* times as likely to continue straight on as it is to turn. Where both left and right turns are possible they are *equally* likely. He never turns back.

- (a) Write down the following probabilities,
- (i) that he will go from A to B, [1]
 - (ii) that, if he goes via B, he will turn towards D. [1]
- (b) Calculate the following probabilities of his reaching his destination, D,
- (i) by the route ABD, [2]
 - (ii) by either of the *most obvious* routes, [3]
 - (iii) by the route ABCBD assuming that he *does* learn by his mistakes during that journey. [3]

5. Consider the rectangle ABCD drawn below.



Also drawn are horizontal and vertical mirror lines, **H** and **V** respectively, and the centre of the rectangle, **O**.

Two rotations of the rectangle are denoted by R_{360}, R_{180} and represent rotations of 360 and 180 degrees respectively, centre **O**, in a clockwise direction. Two reflections of the rectangle are denoted by M_H, M_V and represent reflections of the rectangle in the horizontal and vertical mirror lines respectively.

We can combine the transformations. For example, R_{180} followed by M_H is equivalent to M_V (this can be seen by studying the positions of letters A,B,C and D).

This information has been recorded in the table below.

(a) Copy and complete the table below.

		Applied Second				
		R_{360}	R_{180}	M_H	M_V	
Applied First	R_{360}	?	?	?	?	
	R_{180}	?	?	M_V	?	[3]
	M_H	?	?	?	?	
	M_V	?	?	?	?	

(b) An *identity* transformation is one which leaves the shape unchanged. State the identity for this set of transformations of the rectangle. [1]

(c) An *inverse* of a particular transformation is one which undoes what the transformation did (in other words combines with the transformation to produce the identity). What do you notice about the inverses of each of these transformations? [1]

We shall use the symbol \times_5 to stand for the operation called *multiplication modulo 5* which is defined by multiplying and then selecting the remainder upon division by 5.

For example, 2 combined with 3 is written as $2 \times_5 3$ and equals 1 since $2 \times 3 = 6$ which leaves a remainder of 1 when divided by 5.

- (d) Copy and complete the table for $a \times_5 b$ below for numbers 1,2,3,4, which has the above example entered already in bold.

		<i>b</i> values				
		1	2	3	4	
<i>a</i> values	1	?	?	?	?	
	2	?	?	1	?	[3]
	3	?	?	?	?	
	4	?	?	?	?	

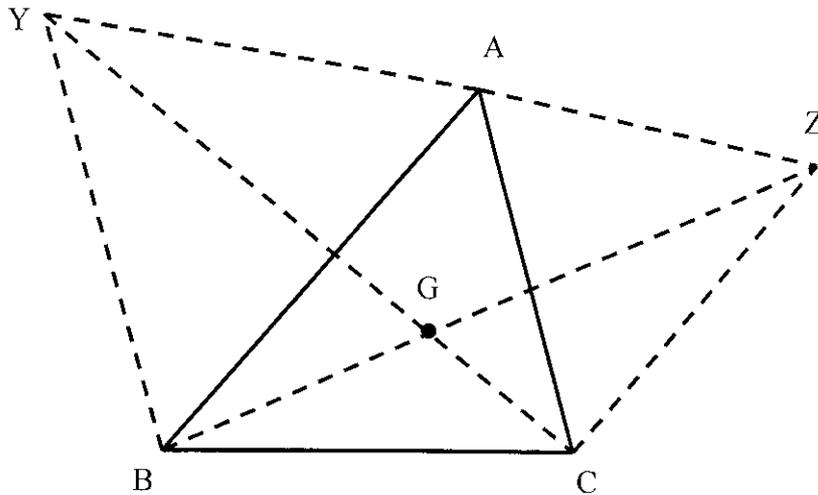
- (e) One final table of an unknown set of transformations is given below, where e represents the *identity*.

	<i>e</i>	<i>a</i>	<i>b</i>	<i>c</i>
<i>e</i>	<i>e</i>	<i>a</i>	<i>b</i>	<i>c</i>
<i>a</i>	<i>a</i>	<i>e</i>	<i>c</i>	<i>b</i>
<i>b</i>	<i>b</i>	<i>c</i>	<i>a</i>	<i>e</i>
<i>c</i>	<i>c</i>	<i>b</i>	<i>e</i>	<i>a</i>

State with a reason which of the two tables in either part (a) or (d) this table can be considered to be equivalent.

(Hint: you should consider inverses of elements in each table). [2]

6. Consider the diagram shown below.



Initially, the triangle ABC has equilateral triangles AYB and AZC drawn on the sides AB and AC respectively. The intersection of the lines BZ and CY is labelled G . The rotation that maps Z onto C , centre A , is denoted by \mathbb{R} .

- (a) (i) Explain why the angle of rotation of \mathbb{R} is 60° . [1]
- (ii) Name the image of point B under \mathbb{R} . [1]
- (iii) Name the image of the *line* BZ under \mathbb{R} . [1]
- (b) If H is the image of point G under \mathbb{R} , explain why
- (i) triangle AGH is equilateral, [2]
- (ii) H lies on the line CY . [1]
- (c) Explain why
- (i) $AG=GH$, [1]
- (ii) $BG=YH$. [1]
- (d) Name two lines, *each* of which is equal in length to $AG+BG+CG$. [2]

Eton College King's Scholarship Examination, 2006.

ENGLISH

(One and a half hours)

You are advised to divide your time equally between parts I, II and III. Attempt all parts and questions.

Part I [30 marks]

To paraphrase is defined in the dictionary as 'to express meaning...in other words'.

Middle English differs from modern English but has many words which are very similar to ones we use regularly.

1. Paraphrase the following passage of Middle English verse; it is the description of a Franklin (landowner). Write your answer in clear, modern English **prose**.

His breed, his ale, was always after oon;
A bettre envined man was nowher noon.
Withoute bake mete was nevere his hous
Of fissh and flessch, and that so plentevous,
It snewed in his hous of mete and drinke,
Of alle deyntees that men koude thinke.
After the sondry sesons of the yeer,
So chaunged he his mete and his soper.
Ful many a fat partrich hadde he in muwe,
And many a breem and many a luce in stuwe.
Wo was his cook but if his sauce were
Poynaunt and sharp, and redy al his geere.

After oon
Envined
Muwe

Up to the same standard
Stocked with wine
Coop

Luce
Stuwe

Pike
Fish pond

Chaucer, *The General Prologue to The Canterbury Tales*.

[15]

2. From this description, what sort of man do you think the Franklin is? Be as specific as you can and refer to the text where possible.

[15]

Part II [30 Marks]

Read the following passage and answer the questions that follow:

Nonconformist Christmas Pudding

It is still perfectly possible to approach this in the traditional way: that's to say, have all the family in the kitchen with you as you make it, each one giving a stir in turn, the youngest first and the oldest last. In order to honour the three kings, you are meant to stir from east to west, but I don't have a compass and am not good enough at geography to work that one out. Stir-up Sunday, the day on which we are meant to make our puddings before they're left to mature in time for Christmas, falls towards the end of November, on the Sunday after Trinity, and is ~ as I've written before ~ a religious rather than a culinary injunction, as in "stir up, we beseech thee, O Lord, the wills of thy faithful people". But in life, things are not always quite so clear cut. Some cooks make sure that thirteen ingredients only are used, to signify Jesus and his apostles, but then again, charms were early on included in the mix: a thimble which meant the person who found it in their portion would remain a spinster, a coin to indicate riches to come, a ring to signify a wedding in the offing and so on. Now that we're just interested in money evidently, it's only coins that are buried within the pudding. But there is still a whiff of the superstitious and pagan about the pud: each person is supposed to wish as they stir.

Historically, the Christmas pudding was seen as a religious affront. In 1664, Oliver Cromwell banned it as a "lewd custom", considering the rich pudding "unfit for God-fearing people", and the Quakers rather gloriously condemned it as "the invention of the scarlet whore of Babylon". I have to say I think the Quakers make Christmas pudding sound rather more exciting than it is but, wanting to rise to the occasion, I have tried to come up with a pudding that the scarlet whore of Babylon would be truly proud of.

The dried fruit remains. It has to: it's the basis of the pudding, after all. I've used blueberries and mission figs as well as currants, etc., simply because I had them in the house. It's true that I thought the blue-berries gave a touch of luxurious unfamiliarity, and the figs brought with them an echo of the old "figgy pudding", but you don't have to comply. Simply keep the amounts and use whatever dried fruit you please. I have excluded mixed peel because I hate it. If you feel otherwise, do otherwise.

But I do want this to be more than the usual compacted-fruit pudding, much as I like it: I wanted something deep, dark and smoky and so soaked my fruits in coffee liqueur, and added cocoa to the flour and breadcrumbs. Ground almonds are to counteract the possibly drying effect of the cocoa, and butter is in place of the regular suet. The sour cream is above all to make this pudding tender, moist and melting.

Nigella Lawson, *Feast*

3. Consider each of the following phrases in the context in which it appears and write an explanation of what you think it means.
- a) 'In order to honour the three kings, you are meant to stir from east to west' (lines 3-4)
 - b) 'and is ~ as I've written before ~ a religious rather than a culinary injunction' (lines 7-8)
 - c) 'a "lewd custom"' (line 17)
 - d) 'gave a touch of luxurious unfamiliarity' (line 24)
 - e) 'the figs brought with them an echo of the old "figgy pudding"' (line 25)
[10]
4. Why do you think that Nigella Lawson feels the need to write this introduction to a recipe for Christmas pudding?
[10]
5. What makes the piece effective, informative and entertaining? Give clear reasons for your comments and quote from the text where appropriate.
[10]

Part III [40 marks]

6. **Either**

Imagine that you are Chaucer's Franklin. Write a diary entry written for a date on which he held a large Christmas banquet. Describe in detail the day's events. (*You are not expected to write this answer in Middle English.*)

Or

Choose your favourite meal. Write an introduction to a recipe for your chosen dish, explaining its significance and demonstrating your enthusiasm for it.

Or

"One cannot think well, love well, sleep well, if one has not dined well." (Virginia Woolf). Write an argument supporting or refuting this statement.

Eton College King's Scholarship Examination 2006

LATIN

(One and a half hours)

Answer question 1 and ONE other question.

1. A greedy king uses trickery to get what he wishes from the people of the island of Rhodes, but it proves to be his downfall.

rex, cum conspexisset classem Rhodiorum, eam habere magnopere cupiebat. nam in mari prope urbem erant septendecim naves, quae omnes octoginta nautas habebant. quod rex credebat se classem in proelio vincere non posse, illam dolo capere constituit. erant in urbe regis duo portus. quam plurimas naves paratas in portu minore celavit, civesque muros custodire iussit. cum autem Rhodii classem suam in portu maiore instruxissent, civibus imperavit ut simularent se libenter eos accipere. sed cum Rhodii urbem intravissent, rex subito, navibus suis ex portu minore eductis, in maiorem portum invectus est ut classem vacuam caperet. Rhodii igitur, cum effugere non possent, omnes in ipso foro interfecti sunt. post multos annos, iuvenis Rhodius regem in itinere proficiscentem vidit et statim sagitta occidit. vulnere accepto moriens rex clamavit, "num regem necare audes?" hoc audito, iuvenis respondit se patris interfectorem punire.

classis, -is (f)	fleet	simulo,-are,-avi,-atum	pretend
Rhodius, -i (m)	a Rhodian	libenter	gladly
dolus, -i (m)	trick	invectus est	he sailed
quam + superlative	as...as possible	vacuus, a, um	unguarded
celo,-are,-avi,-atum	hide	forum, -i (n)	forum
instruo,-ere,-xi,-ctum	draw up	audeo,-ere,ausus sum	dare

- (a) Translate the whole passage into English, writing your translation on alternate lines. [40]
- (b) *conspexisset* (line 1): in which tense of the subjunctive is this verb? [1]
- (c) *quae* (line 2): give the case, number and gender of this relative pronoun. [1]
- (d) *dolo* (line 3): give the case of this noun. [1]
- (e) Give the positive and comparative of *plurimas* (line 4), keeping them in the same case and number. [2]
- (f) *portu minore* (line 4): change this phrase into the genitive. [2]
- (g) *instruxissent* (line 5): why is this verb in the subjunctive? [1]
- (h) *se* (line 6): in which case is this word and why? [2]
- (i) *intravissent* (line 6): give the indicative form of this verb, retaining the same tense and person. [1]
- (j) *navibus* (line 7): make this noun singular, keeping its case. [1]
- (k) *maiorem* (line 7): give the positive of this comparative, keeping the same case and number. [1]
- (l) *caperet* (line 8): why is this verb in the subjunctive? [1]
- (m) *possent* (line 8): give the third person singular indicative of this verb, keeping the same tense. [1]
- (n) *vidit* (line 9): give the passive indicative of this verb, keeping the same tense and person. [1]
- (o) *sagitta* (line 9): in which case is this noun? [1]

- (p) *vulnere accepto* (line 10): what construction is this? [1]
 (q) *patris* (line 11): make this noun plural, keeping the same case. [1]
 (r) Of what construction is *punire* (line 11) a part? [1]
- [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.*

Galba is attempting to find a safe place for him and his legion to spend the winter in Gaul, but the locals launch an attack and force him to change his mind.

- Galba in oppido quod in duas partes flumine divisum erat hiemare constituit. alteram partem huius oppidi Gallis concessit, alteram ab his relictam legioni suae dedit. cum Galli et Romani quadraginta dies laete habitavissent, subito unus ex militibus Galbam certiorem fecit omnes Gallos e parte sua nocte discessisse et maximum exercitum hostium in montibus circum oppidum advenisse. Galba timebat magnopere; nam munitiones oppidi non perfectae sunt, parum cibi, parum aquae in castris erat, et milites fessi erant. prima luce hostes impetum fecerunt ex omnibus partibus, et iaciebant lapides et tela in muros. primo, Romani fortiter hostibus resistebant sed, propter multa vulnera accepta et maiores copias hostium, mox difficillimum erat oppidum defendere. itaque Galba suis imperavit ut eruptionem facerent. Romanis ex oppido cum magnis clamoribus egressis, hostes perterriti statim fugiebant. subito fortuna proelii mutata est et Romani duo milia hostium circumventos interfecerunt. tum Galba, ceteros in montes persecutus, oppidum deleri iussit. deinde, cum legione profectus est ut in tutiore parte Galliae hiemaret; nam aliud proelium nolebat.

CAESAR (adapted)

divido,-ere,-si,-sum	divide	impetus, -us (m)	attack
hiemo,-are,-avi,-atum	spend the winter	pars, -tis (f)	direction
alter,-a,-um...alter,-a,-um	one...the other	lapis, -idis (m)	stone
Galli, -orum (m)	Gauls	primo	at first
concedo,-ere,-cessi,-cessum	allocate	resisto,-ere,-stiti + dat	resist
certiorem facio	I inform	eruptionem facio	I break out
advenio,-ire,-veni,-ventum	arrive	fortuna, -ae (f)	fortune
munitiones, -um (f.pl)	fortifications	muto,-are,-avi,-atum	change
perficio,-ere,-feci,-fectum	complete	ceteri, -orum (m)	the rest
parum + genitive	not enough	persequor,-i,-secutus sum	chase

- (a) Describe the town in which Galba decides to spend the winter (line 1). [2]
 (b) How did Galba divide up the town? (lines 1-2) [2]
 (c) For how long did the arrangements work well? (line 3) [1]
 (d) Which word in lines 2-3 suggests that the initial situation between Gauls and Romans was peaceful? [1]

- (e) What is the first piece of information brought by the Roman soldier to Galba? (line 4) [4]
- (f) From the second part of the messenger's report (lines 4-5), give two details about the enemy and their position. [2]
- (g) What three factors cause Galba to be afraid? (lines 5-6) [3]
- (h) When do the Gauls make their attack and why is it so dangerous? (lines 6-7) [2]
- (i) What form does the attack take? (line 7) [2]
- (j) Pick out and translate the word in lines 7-8 which makes clear the quality of the Romans' initial resistance. [1]
- (k) Why are the Romans unable to sustain this level of resistance? (lines 8-9) [4]
- (l) Change the words *Galba suis imperavit ut eruptionem faceret* (lines 9-10) into a command clause using the word *iubeo*. [3]
- (m) How do the Romans counter-attack and what is the effect on the Gauls? (lines 10-11) [3]
- (n) Translate into good English the whole sentence *subito...interfecerunt*. (lines 11-12) [4]
- (o) How does Galba ensure that there is no repeat of this episode? (line 12) [2]
- (p) Why does Galba not spend the rest of the winter in the same area? (lines 13-14) [1]
- (q) Pick out and translate the word in lines 13-14 which suggests that Galba wants a peaceful winter. [1]
- (r) *dedit* (line 2): what are the principal parts of this verb? [1]
- (s) Find and write down an example from this passage of a perfect participle which has an active meaning. [1]

[Total for Question 2: 40]

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

When Corvinus had arrived at the river to look at his army, a big cloud came down from the sky. Therefore, the soldiers could not see him. For he had been taken away by the gods. Whilst everybody was either terrified or sad, a girl, who lived near the temple, came to the city and said that Corvinus had appeared to her. Seven citizens encouraged her to speak, and she announced that Corvinus was safe. She said, "They have told him to look after the Romans in this war. Therefore defend your country with swords and shields because a thousand Greeks are advancing to the city." On the fourth day, the generals ordered the women and children to leave so that they would not perish in the fight, but they wished to stay in the city with the men.

inspicio, -ere, -exi, -ectum	look at
nebula, -ae (f)	cloud
descendo, -ere, -di, -sum	come down
aufero, -ferre, abstuli, ablatum	take away
appareo, -ere, -ui, -itum	appear
curo, -are, -avi, -atum + acc	look after

[Total for Question 3: 40]

Eton College King's Scholarship Examination 2006

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 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:*

(conduire) They drive :

(balancer) We swing :

(se lever) Do not get up! (2nd person singular) :

(faire) I will make :

(savoir) He will know :

(tenir) He would hold :

(être) I used to be :

(nager) You were swimming (2nd person singular) :

(venir) She has come :

(ouvrir) I have not opened :

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.

- () s'appelle le professeur () tu m'as parlé ?
() est ton adresse ? La () est 22 rue de Charenton.
Elle m'a prié () ramasser le journal () était par terre.
() maison-ci est plus grande que ()-là.
() j'adore nager dans la mer mais mon frère ne () pas le faire.

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:

Parce qu'il pleut.....

Avant de.....

Si j'avais un million d'euros.....

Après avoir.....

Qui est cette femme.....?

2. READING COMPREHENSION (25 marks) :

To be written on examination stationery.

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

FORESTS IN THE REGION OF “LA WALLONIE”

Même vue des autoroutes (m), la Wallonie est d’évidence la partie la plus boisée du pays, avec 32 pour cent du territoire occupé par des forêts. De ce total, soit environ 545 000 hectares, les quelque 100 000 propriétaires forestiers privés possèdent environ la moitié, avec **des parcelles de taille variable** (n), souvent inférieures à 1 hectare. La moyenne tourne toutefois autour de 2,5 hectares. Les forêts wallonnes sont relativement peu variées en termes d’essences forestières. Les sapins dominent avec 172 400 hectares, suivies de chênes (82 100 hectares) et de hêtres (42 300 hectares). Globalement, les forêts publiques comportent plus de feuillus que les forêts privées.

Alors qu’on parle dans le monde de déforestation, en estimant les zones déboisées sous la forme de **milliers de terrains de football** (o), la Wallonie se reboise depuis un siècle, pour diverses raisons. «Certains villages d’Ardennes, où l’agriculture se raréfie, se voient ainsi encerclés par la forêt», nous explique Jean-Paul Dubois, président de la Société royale forestière de Belgique (SRFB). Les plantations (de pins, principalement) des zones agricoles délaissées ont, en effet, permis aux forêts de reprendre 100 000 hectares sur le siècle écoulé. Et sur ces vingt dernières années, les prélèvements de bois ont été inférieurs à l’accroissement en volume des forêts. Ce qui se traduit par une progression de 23 millions de mètres de bois sur pied sur un total (en l’an 2000) de 109 millions de mètres pour **l’ensemble de la région wallonne** (p). «C’est que, pour survivre, la forêt doit être exploitée et elle doit produire», explique David Charbonnier, le maire adjoint de la région.

A ce propos (q), on note une diminution des ventes de bois sur pied depuis la fin des années 90. Ici aussi, pour une série de raisons, comme la maladie de certaines espèces d’arbre, et surtout la chute du prix du bois liée aux grandes tempêtes en France en décembre 1999, et l’arrivée sur le marché de monceaux de «chablis» (bois abattu par le vent). C’est aussi une conséquence de la mondialisation du marché.

- (a) How is the Belgian region “La Wallonie” described in the opening line? [2]
(b) How much of the forest is owned by private owners? [1]
(c) How big are most privately owned plots of land in the forest? [1]
(d) “Sapins”, “chênes” and “hêtres” are different kinds of what? [1]
(e) What particular phenomenon has been seen in the rest of the world, as far as forests are concerned? [1]
(f) What, on the contrary, has been happening in “la Wallonie,” and for how long? [2]
(g) What has happened to some villages in the Ardennes? [2]
(h) Who is Jean-Paul Dubois? [1]
(i) What has happened over the last 20 years? [2]
(j) How can the forest survive? [2]
(k) What does “bois sur pied” mean? [1]
(l) What 4 reasons are given for the drop in sales of “bois sur pied”? [4]
(m-q) What do you think the words or phrases **in bold italics** mean? You may translate them or explain 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.

JOHNNY HALLYDAY

Notre bon vieux Johnny national veut devenir belge ! Les démarches officielles du chanteur ont commencé depuis déjà un bon mois auprès de l'ambassade de Belgique en France. C'est le quotidien belge *La Dernière Heure* qui révèle l'information. Johnny a rempli les documents nécessaires où il "déclare vouloir acquérir la nationalité belge" et se "soumettre à la constitution et aux lois du peuple belge." Ces formulaires sont datés du 27 novembre. Ils ont été officiellement signés à Marnes-la-Coquette. Né en France en 1943, Johnny Hallyday, de son vrai nom, Jean-Philippe Smet, est de mère française et de père belge. Toujours dans le quotidien, l'ambassadeur de Belgique, Pierre-Dominique Schmidt, affirme que Johnny croyait avoir les deux nationalités, la belge et la française. Mais après vérification, le chanteur n'est que français. Si son père est bien belge, il n'a pas pu lui donner sa nationalité car "quand son père l'a reconnu, il n'était pas encore divorcé de sa précédente épouse. Alors, à l'époque, la loi belge n'autorisait pas la reconnaissance d'enfants adultérins." Il ajoute qu'objectivement, il est "vraiment très belge de cœur." Johnny effectue cette démarche symbolique pour renouer avec ses origines paternelles. Il continuera cependant à résider en France et à y payer ses impôts!

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) The official papers were signed yesterday in Belgium.

b) In the last ten years, that is to say since 1996, thousands of trees have been planted.

c) There has been a drop in the number of markets since the 1980s.

d) "I shall continue to read a daily newspaper before going to school," Paul said.

e) It was the biggest tree in the forest until the storms of last year.

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.

A SMART DETECTIVE

Déetective particulier – va-et-vient des voyageurs dans l’hôtel – arrivée soudaine des jeunes hommes – le café et le gâteau – le garçon – la clef du numéro onze – le directeur de l’hôtel – la police – le bureau – le collier de diamants.

Eton College King's Scholarship Examination 2006

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.*

A SMART DETECTIVE

Un hôtel de Paris, où venaient beaucoup de voyageurs riches, employait à son service un détective particulier.

Un jour celui-ci était assis dans le grand vestibule de l'hôtel, où il avait l'air de lire son journal, mais en effet il regardait le va-et-vient des voyageurs. Il portait une veste noire, une cravate rose et un pantalon gris pour ne pas se faire distinguer de tous les gens qui allaient et venaient dans le vestibule.

Tout à coup il a vu entrer deux jeunes hommes très élégants qui se sont dirigés tout de suite vers la salle à manger. Le détective a décidé de les suivre. Il ne savait pas pourquoi mais ils avaient l'air très soupçonneux.

Il s'est assis à une table à côté de celle des nouveaux-venus et il a commandé une tasse de café et une tranche de gâteau au chocolat.

Bientôt un des jeunes gens a appelé le garçon et lui a demandé d'aller chercher au bureau la clef de la chambre numéro onze. Or, le détective savait que cette chambre était celle d'une riche Américaine qui était arrivée ce jour même et qui était sortie une demi-heure avant pour faire du lèche-vitrines.

Peu de temps après, un des jeunes hommes s'est levé de la table et lentement il a monté l'escalier jusqu'au premier étage, où il a ouvert la porte de la chambre numéro onze. Il a jeté un regard par-dessus son épaule puis il a disparu à l'intérieur.

Le détective, qui l'avait suivi à quelque distance, s'est rendu tout de suite au bureau, où le directeur de l'hôtel a téléphoné à la police.

Bientôt, le jeune homme est descendu rejoindre son compagnon dans la salle à manger où ils ont demandé l'addition. Ils l'ont payée et puis ils sont sortis. Ils allaient quitter l'hôtel quand le directeur les a priés très poliment de l'accompagner dans son bureau où il leur a demandé de vider les poches. Là-dessus le détective a eu le très vif plaisir d'enlever aux voleurs un collier de diamants et plusieurs bijoux précieux.

[30 marks]

Eton College King's Scholarship Examination 2006

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 plural | |
| (ii) | τὸ δένδρον | accusative plural | |
| (iii) | ἡ οἰκία | dative singular | |
| (iv) | ἡ τιμή | genitive singular | |
| (v) | ὁ δεσπότης | nominative plural | [5] |

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

- | | | | |
|-------|-------------|--|-----|
| (i) | τοὺς λόγους | | |
| (ii) | τὴν οἰκίαν | | |
| (iii) | ὁ παῖς | | [3] |

(c) Translate into English:

- | | | | |
|-------|----------|--|-----|
| (i) | λύσει | | |
| (ii) | ἐλύσατε | | |
| (iii) | λύομεν | | |
| (iv) | λύσαντες | | |
| (v) | ἐλύθη | | |
| (vi) | εἰσί | | [6] |

(d) Translate into Greek:

- | | | | |
|-------------|-------|----------------------|-----|
| from λύω: | (i) | loose! (pl.) | |
| | (ii) | we were loosing | |
| | (iii) | they are loosed | |
| from φιλέω: | (iv) | you (pl.) are loving | |
| | (v) | to love | |
| from εἰμί: | (vi) | they were | |
| | | | [6] |

[Total for Question 1: 20]

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

Themistocles, in his flight from the Spartans (Lacedaimonians), comes at last to his former enemy, King Admetus, who refuses to hand him over to the Spartans.

οἱ δὲ Λακεδαιμόνιοι πέμπουσιν ἄγγελον πρὸς τοὺς Ἀθηναίους. ὁ δὲ ἄγγελος λέγει ὅτι δεῖ τοὺς Ἀθηναίους κολάζειν τὸν Θεμιστοκλέα. οἱ δὲ Ἀθηναῖοι πειθονται ὑπὸ τοῦ ἀγγέλου καὶ κελεύουσιν ἄνδρας τινὰς διώκειν τὸν Θεμιστοκλέα καὶ ἄγειν αὐτὸν εἰς τὰς Ἀθήνας. ὁ δὲ Θεμιστοκλῆς προαισθανόμενος φεύγει εἰς τὴν Κέρκυραν. ἐπεὶ δὲ οἱ Κερκυραῖοι οὐκ ἐθέλουσιν ἔχειν αὐτόν, ἐκπέμπεται ἐκ τῆς νήσου. τέλος δὲ διωκόμενος ἔρχεται πρὸς Ἀδμητον τὸν τῶν Μολοσσῶν βασιλέα. καὶ ὁ μὲν ἀνὴρ οὐκ οἴκοι ἐστίν, ἡ δὲ γυνὴ κελεύει αὐτὸν καθίζεσθαι ἐπὶ τὴν ἑστίαν.

μετὰ τρεῖς ἡμέρας ὁ Ἀδμητος ἐπανέρχεται οἴκαδε καὶ ὄρα τὸν Θεμιστοκλέα καθιζόμενον ἐπὶ τὴν ἑστίαν. πρῶτον μὲν οὖν ὀργίζεται διότι ἐκεῖνος οὐ φίλος αὐτῷ ἐστίν, ἔπειτα δὲ ὁ Θεμιστοκλῆς λέγει, 'βοήθει μοι· ἰκέτης γάρ εἰμι.' ὁ οὖν βασιλεὺς βοηθεῖ αὐτῷ καὶ οὐκ ἐκδίδωσιν αὐτὸν τοῖς Λακεδαιμονίοις.

THUCYDIDES (adapted)

δεῖ	it is necessary
κολάζω	I punish
πειθομαι	I am persuaded
διώκω	I pursue
προαισθάνομαι	I learn in advance
ἡ Κέρκυρα	Corcyra (modern-day Corfu)
ὁ Μολοσσός	a Molossian
οἴκοι	at home
καθίζομαι	I sit down
ἡ ἑστία	hearth
διότι	because
ὁ ἰκέτης	suppliant (one who asks for mercy)
βοηθέω + dative	I help
ἐκδίδωσιν	'he gives up, surrenders'

[Total for Question 2: 20]

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

A farmer pays a high price for his selfish behaviour

ἦσαν δὲ δύο φίλοι, γεωργὸς καὶ ποιμὴν, ὁ μὲν μῶρος, ὁ δὲ σοφός. πᾶσαν
δὲ τὴν ἡμέραν πονήσαντες ἐν τοῖς τῆς Ἀττικῆς ἀγροῖς, μάλιστα
ἔκαμνον. πρὸς ἑσπέραν οὖν τούτοις ἔδοξεν οἴκαδε βαίνειν· διὰ δὲ τοῦτο
ἐκ τῶν ἀγρῶν ἐξελθόντες, ἐβάδιζον ἀνὰ τὴν ὁδὸν βραδέως πρὸς τὴν
5 πόλιν. ἐξαίφνης δὲ ὁ γεωργὸς εἶδε λαμπρὸν τι χρῆμα κείμενον παρὰ
δένδρῳ. ἔτρεχεν οὖν ὡς τάχιστα πρὸς τὸ δένδρον καὶ ἔλαβε τὸ
κειμήλιον. ἔπειτα ἐβόα μεγάλη φωνῆ, 'ξίφος κάλλιστον καὶ δεινότατον
εὔρηκα.' ἀλλὰ ἐκέλευσε τὸν ποιμένα μῆτε προσβλέπειν τὸ ξίφος μῆτε
ἄπτεσθαι. μετὰ δὲ μικρὸν χρόνον, στρατιῶταί τινες προσῆλθον πρὸς
10 τοὺς φίλους. 'οἴμοι,' ἔφη ὁ γεωργός, 'ἀπολώλαμεν' φοβοῦμαι γὰρ μὴ
οὔτοι πάρεισι διὰ τὸ ξίφος.' ὁ δὲ ποιμὴν, 'ἡμεῖς,' ἔφη, 'οὐκ ἀπολώλαμεν,
ἀλλὰ σὺ μόνος. ὥσπερ γὰρ σὺ πρότερον οὐκ ἐβούλου ἐμοὶ τῆς εὐτυχίας
μεταδοῦναι, οὕτως καὶ νῦν ἐγὼ τῆς σῆς δυστυχίας μετέχειν οὐκ ἐθέλω.'
οἱ οὖν στρατιῶται, ἐπεὶ ἦσθοντο τὸ ξίφος ἐν τῇ χειρὶ αὐτοῦ, τῷ
15 γεωργῷ προσβαλόντες ἀπέκτειναν, ὁ δὲ ποιμὴν εὐθὺς ἔφυγε ἐκ τοῦ
κινδύνου.

ἡ Ἀττικὴ	Attica	μῆτε	neither
κάμνω	I am weary	ἄπτομαι	I touch
ἐξαίφνης	suddenly	ἀπόλωλα	I am destroyed, done for
λαμπρός, -ά, -όν	shiny, sparkling	μὴ	that
τὸ χρῆμα	thing	ὥσπερ	just as
κείμεναι	I lie	μεταδοῦναι + genitive	'to give a share of'
τὸ κειμήλιον	treasure	ἡ δυστυχία	misfortune

- (a) What are we told about the two friends in line 1? [2]
(b) Why are they so tired (lines 1-3)? [2]
(c) What decision do they come to and at what time of day (line 3)? [1+1]
(d) What do they then do? (lines 3-5) [3]
(e) What suddenly happens in lines 5-6? [2]
(f) As a result of this what does ὁ γεωργός then do (lines 6-7)? [3]
(g) What boast does he make and how does he deliver this boast (lines 7-8)? [2+2]
(h) How does he now treat the shepherd (lines 8-9)? [2]
(i) Translate from μετὰ δέ to κινδύνου (lines 9-16) [15]

[Total for Question 3: 35]

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

- a) The Athenians are not willing to guard the young men.
- b) The Spartans were attacking Athens for a long time.
- c) It is necessary for a king to help the citizens.
- d) His brother was ordered to carry the big stone.
- e) The husbands, having ordered the wives to sit down, chased the children out of the house.

[Total for Question 4: 25]

Eton College King's Scholarship Examination 2006

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. The *specific heat capacity* of aluminium is $900 \text{ J}/(\text{kg } ^\circ\text{C})$. This means that if 900 joules of energy are supplied to a 1 kg block of aluminium, its temperature will rise by $1 ^\circ\text{C}$.

- a) How much energy has to be supplied to a 0.25 kg block of aluminium to raise its temperature by $1 ^\circ\text{C}$?

[1]

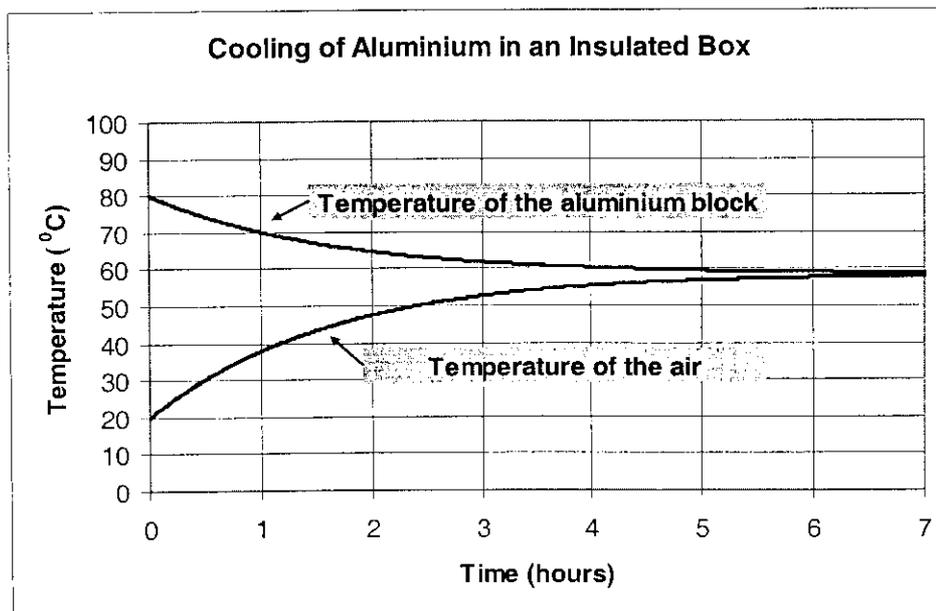
- b) If 2700 joules are supplied to a 1 kg block of aluminium, by how much will the temperature rise?

[1]

- c) A block of aluminium is heated by $3 ^\circ\text{C}$ when 4050 joules of energy are supplied to it. What is the mass of the aluminium block?

[2]

A hot 1 kg block of aluminium is placed in a box containing air. You can assume that the box is a perfect insulator. The temperature of the aluminium block and the temperature of the surrounding air are continuously monitored. The results of this experiment are shown below:



d) What is meant by “*the box is a perfect insulator*”?

[1]

e) Why does the temperature of the aluminium block decrease most rapidly at the start of the experiment?

[1]

f) How much does the temperature of the aluminium block decrease by?

[1]

g) How much energy has the aluminium block lost during the experiment?

[1]

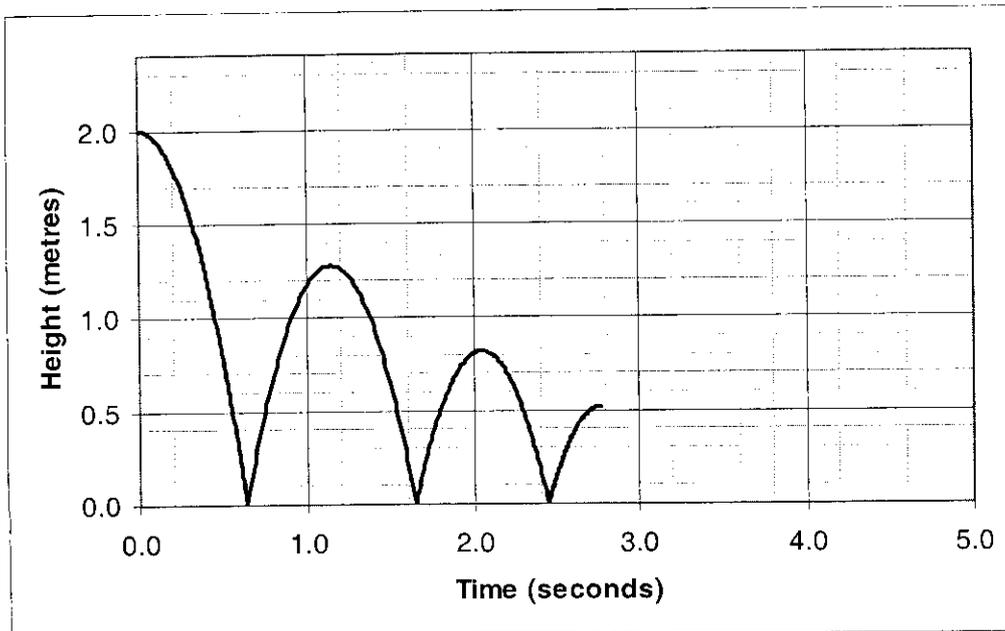
h) What has happened to the energy lost by the aluminium block?

[1]

i) The box contains 0.73 kg of air. Calculate the specific heat capacity of air.

[3]

2. A ball is dropped from a height of 2m. It is allowed to bounce several times. A graph of the height of the ball against time is shown below for the first three bounces.



The effect of air resistance is negligible and you should ignore it throughout this question.

a) Describe what is happening to the speed of the ball between 0.0 seconds and 0.6 seconds.

[1]

b) Use the graph to determine the maximum heights achieved by the ball as it makes successive bounces. Also, note the times at which the ball is at its maximum heights. Record your readings in the table below. Two sets of data have already been completed for you.

Height (metres)	Time (seconds)
2.00	0.00
0.52	2.75

[2]

c) Describe as fully as you can the energy exchanges occurring between 0.0 seconds and 1.13 seconds.

[4]

d) What happens to the total amount of energy possessed by the ball as it undergoes successive bounces? Explain your answer.

[1]

e) On the graph at the start of this question, sketch - as carefully as you can - the next two bounces. (*N.B. You will not be able to draw this precisely and you are not expected to do any additional calculations.*)

[4]

3. Zinc metal is manufactured by heating zinc oxide with carbon in a blast furnace at 1000 °C. Zinc boils at 907 °C, so it is then condensed to a liquid, purified by fractional distillation, and finally allowed to solidify.

a) Name the substance that has been oxidized in the reaction.

_____ [1]

b) In terms of the particle theory of matter, describe the changes in the behaviour of the zinc atoms when liquid zinc is distilled.

_____ [3]

c) Explain how the distillation process enables the zinc to be purified.

_____ [2]

When iron is added to copper sulphate solution a reaction is seen, but there is no reaction if zinc sulphate solution is used.

d) Place the three metals, copper, iron and zinc, in order of increasing reactivity, starting with the least reactive.

_____ [1]

e) State three things you would expect to see when iron powder is added to copper sulphate solution.

_____ [3]

f) Iron does not rust if a piece of zinc is fixed to it. Explain this observation.

[2]

4. When a 5 cm long piece of magnesium ribbon is added to hydrochloric acid it dissolves and a gas is formed.

a) What salt is formed in this reaction?

[1]

b) Describe how you would identify the gas formed in this reaction.

[2]

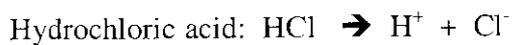
c) If the 5 cm length of magnesium ribbon is cut into very small pieces and then added to the hydrochloric acid the gas is formed more quickly. Suggest an explanation for this.

[2]

d) Describe how you would obtain a pure solid sample of the salt formed in the reaction between magnesium and hydrochloric acid.

[3]

In water hydrochloric acid (a strong acid) and ethanoic acid (a weak acid) form ions according to the following equations:



In the experiments below 10 cm³ each of hydrochloric acid and ethanoic acid were used, and the acids were of exactly the same concentration.

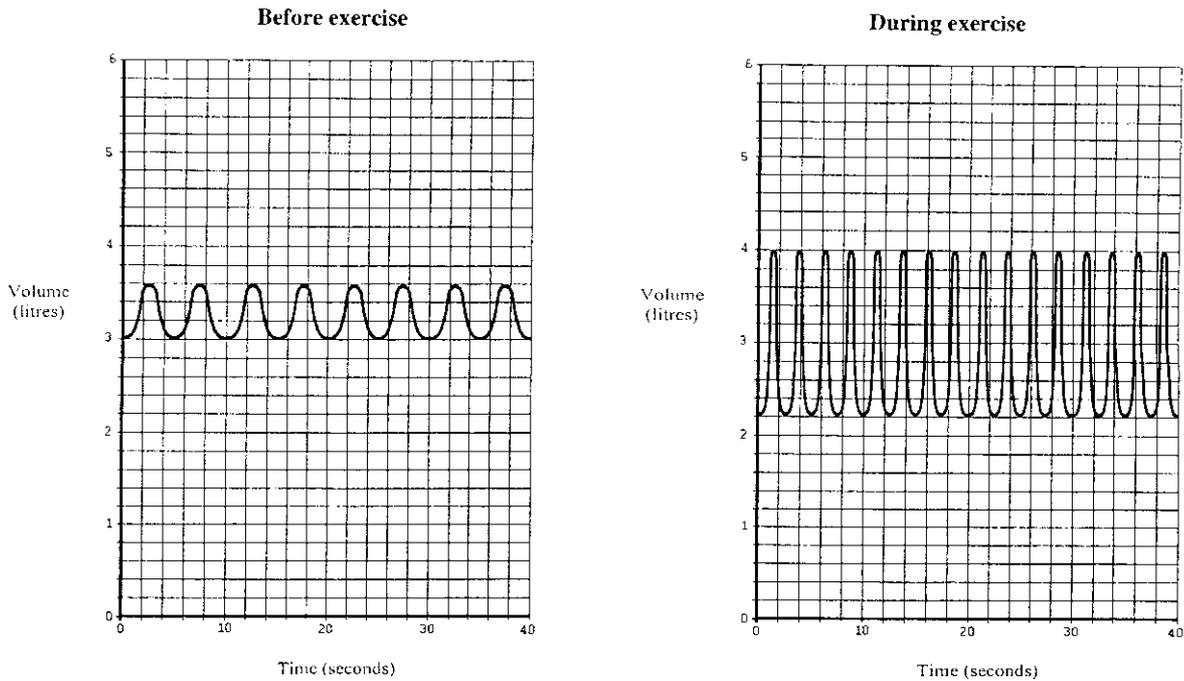
- e) The pH of a solution of the hydrochloric acid was found to be 3.0. Suggest a likely value for the pH of the solution of ethanoic acid and explain your answer.

[2]

- f) 20 cm³ of sodium hydroxide solution was added to 10 cm³ of the hydrochloric acid. The resulting solution was found to have a neutral pH. What volume of sodium hydroxide solution would have to be added to give a neutral solution with 10 cm³ of the ethanoic acid? Explain your answer.

[2]

5. A spirometer is a machine used to measure the volume of air breathed in and out. The graphs below show the results obtained when a spirometer was used to measure the volume of air breathed in and out by an athlete before and during exercise.



- a) Calculate the athlete's breathing rate (in breaths per minute) before exercise and during exercise.

Before exercise:

_____ [1]

During exercise:

_____ [1]

- b) What volume of air per minute is breathed in by the athlete before and during exercise? Show your working and make sure you state the units correctly.

Before exercise:

_____ [1]

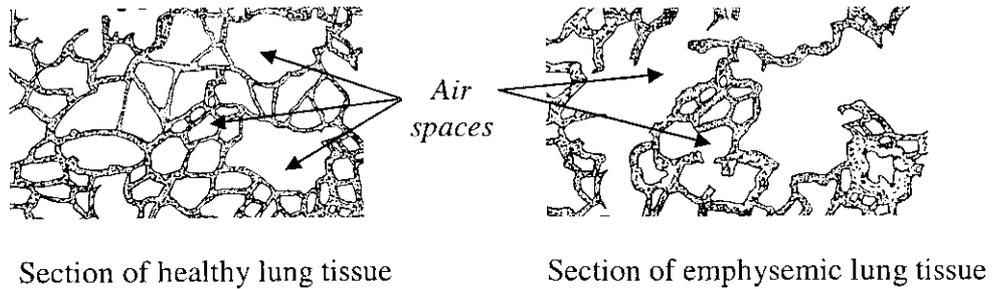
During exercise:

_____ [1]

c) Explain the biological significance of your answers in part (b).

[3]

Regular smoking of cigarettes can lead to a lung disorder called emphysema, in which the delicate air sacs of the lung (called alveoli) can break down and their walls thicken. Drawings of cross sections of healthy and emphysemic lung tissue, as seen under the microscope, are shown below.



d) Use the information above and the drawings to explain why those suffering from emphysema quickly become breathless when exercising.

[3]

e) What do you think a spirometer trace would look like for a person at rest who is suffering from emphysema? Be sure to explain your suggestion.

[2]

End of Paper

Eton College King's Scholarship Examination 2006

SCIENCE (SECTION 2 - DATA ANALYSIS)

(30 minutes)

Candidate Number: _____

This paper describes the results of some experiments. Read the information and answer the questions in the spaces provided.

Additional materials required: Graph Paper.

For examiners' use only.

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

1. Crustaceans are one of the main groups which make up the arthropods. Name two other major arthropod groups.

_____ [2]

2. Woodlice are one of the few crustaceans that are not aquatic but, like all arthropods, they have segmented bodies (see Figure 1 below). Each segment consists of a sheet of hardened cuticle linked to the next segment by a softer, elastic and more flexible area of cuticle. Apart from their segmented bodies, give two characteristic features of arthropods.

_____ [1]

_____ [1]

3. The growth rate of woodlice is related to environmental conditions and, in particular, temperature. A biologist studied the growth rates of woodlice under controlled conditions in the laboratory at four different temperatures. Explain, with specific examples, what you suppose is meant by the expression 'under controlled conditions'.

_____ [3]

In his first experiment, he started with four samples of 20 woodlice of the same size and measured their growth rate in the laboratory over a period of a few months at constant temperatures of 5 °C, 10 °C, 15 °C and 20 °C respectively. He initially thought of measuring the increase in mass of each woodlouse, but soon rejected this as unlikely to be a reliable measure of growth.

4. Explain why the change in mass of a woodlouse is likely to be an unreliable measure of growth.

_____ [1]

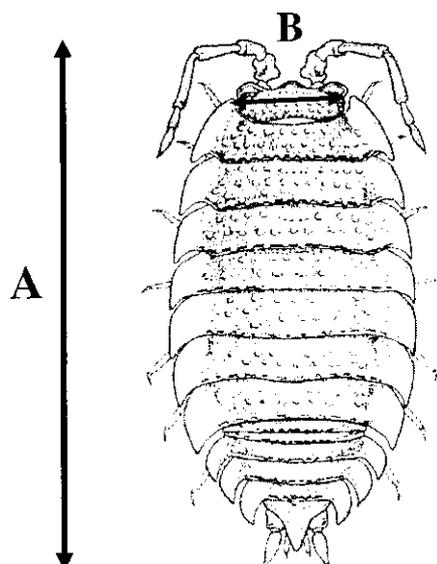


Figure 1

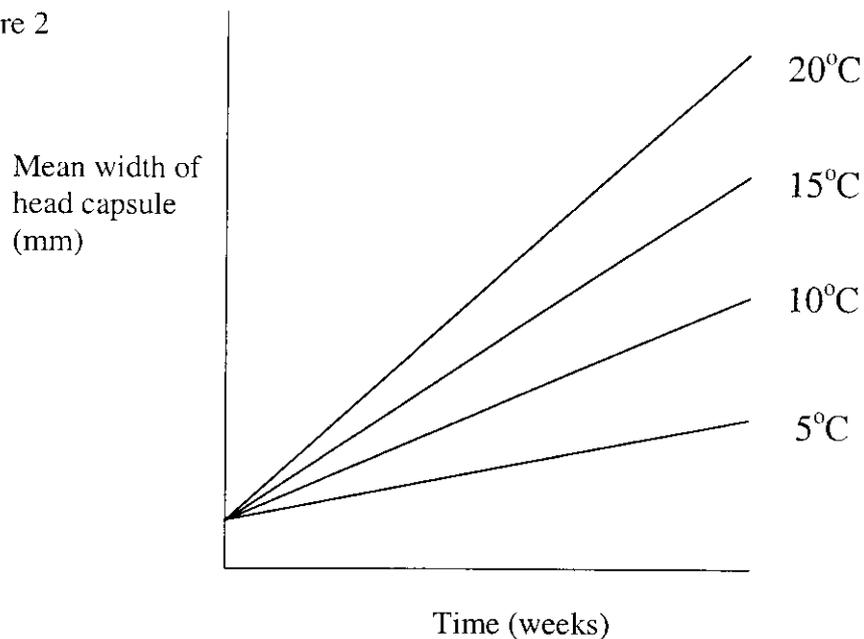
He then considered taking the length of a woodlouse (measurement 'A' on Figure 1) but decided that it would be more reliable to measure the width of the head capsule instead (measurement 'B' on Figure 1).

5. Explain why measurement 'A' is likely to be less reliable than measurement 'B'.

[1]

He plotted a graph of the average (mean) width of the head capsules every week at 5 °C, 10 °C, 15 °C and 20 °C. The lines of best fit are shown below (Figure 2).

Figure 2



6. Describe the trends that are shown on the graph.

[2]

7. Describe two ways he could have made his data more reliable.

[2]

8. He found that the woodlice survived less well at some temperatures than at others. For example, only 8 of the woodlice survived until the end of the experiment at 20°C, whereas 18 of the woodlice survived at 5°C. Give two reasons why the low survival rate at 20°C might make the mean growth rates calculated less reliable.

[2]

9. For each of the four temperatures, the biologist calculated a daily growth rate. Suggest in what units the growth rate was expressed.

[1]

10. Using the information contained in Figure 2, sketch a graph on the axes below of average growth rate plotted against the temperature. Label the two axes. [4]



The biologist made a number of discoveries:

- a) female woodlice start breeding when they reach a certain size rather than at a certain age;
- b) female woodlice carry their embryos underneath their bodies in a structure called a brood pouch;
- c) the young embryos hatch inside the brood pouch and are not released until they have developed sufficiently.

11. Suggest two advantages of the young not being released from the brood pouch until they have reached a certain stage of development.

[2]

The biologist then investigated the relationship between the size of the mother woodlouse and the number of embryos carried. He looked at 15 different woodlice and his data are given below in Table 1 (the woodlice indicated by X, Y and Z are referred to in question 13):

Table 1

Female head capsule width (arbitrary units)	Number of embryos carried in brood pouch	
5	5	
5	3	
5	8	X
6	4	
6	5	
6	3	
7	5	
8	7	
9	6	
10	12	Y
10	7	
11	8	
12	8	
13	9	
14	15	Z

12. Plot these data on the graph paper provided. Be sure to label the axes fully. Plot a line of best fit through the points. [5]

13. Inspection of the female woodlice featured in Table 1 showed that three of them (denoted as X, Y and Z on the right hand side of the Table) carried some embryos that did not survive their time in the brood pouch. Speculate why embryos carried by these particular mothers have died.

[2]

14. The biologist realised that knowing that there was a clear relationship between growth rate and temperature, and also between size of female and the number of embryos carried in the brood pouch, would help him to predict the population growth of a woodlouse population under controlled conditions in the laboratory. What other information would he need before he was able to produce an estimate for population size in one year's time?

[5]

The biologist then decided to study the survival of a group of woodlice in their natural habitat. He followed the survival of 100 new-born woodlice over a two-year period. His data were as follows:

Time after start of experiment (weeks)	Number surviving from original group
0	100
6	82
12	62
18	50
24	40
30	32
36	25
42	20
48	16
54	10
60	6
66	0

15. Calculate the % survival rate of woodlice in their natural habitat between weeks 0 and 6, and between weeks 48 and 54. Show your working.

a) between weeks 0 and 6:

[2]

b) between weeks 48 and 54:

[2]

16. Suggest two possible reasons why the two survival rates you have calculated differ.

[2]

End of Paper

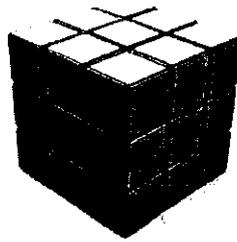
Eton College King's Scholarship Examination 2006

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) Put the following numbers in ascending order:
 $\sqrt{9}$ π $\sqrt{\frac{49}{4}}$ $2\sqrt{2}$ $\frac{17}{5}$
- (b) Express the following as fractions in their simplest form:
 $a = 0.\dot{3}$
 $b = 0.025$
 $c = 0.\dot{2}\dot{7}$
2. (a) Find the value of $\sqrt{1+2+3+4+x}$ when $x = 15$.
(b) Find the whole number values of x (which may be either positive or negative) such that $x < 15$ and $\sqrt{1+2+3+4+x}$ is a positive whole number.
3. (a) What is the sum of the internal angles of a 3 sided polygon (i.e. a triangle)?
(b) What is the sum of the internal angles of a 4 sided polygon (e.g. a rectangle)?
(c) What is the sum of the internal angles of an n sided polygon?
(d) Two internal angles of a polygon are 50° and 150° . All its other internal angles are 160° . How many sides does the polygon have?
4. The diagram below shows a $3 \times 3 \times 3$ cube that is made up of a set of small cubes, each measuring $1 \times 1 \times 1$.



Now consider a large cube measuring $n \times n \times n$ that is made up of a set of small cubes, each measuring $1 \times 1 \times 1$. The outside of the large cube is painted and then dismantled back into the $1 \times 1 \times 1$ small cubes.

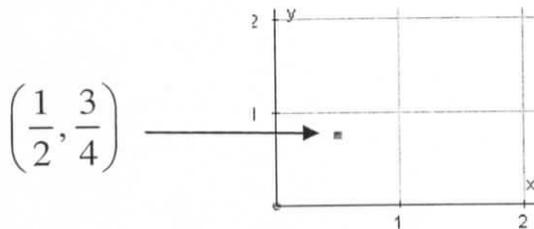
How many of the $1 \times 1 \times 1$ cubes will have:

- (a) exactly three sides painted;
- (b) exactly two sides painted (leave your answers in terms of n);
- (c) no sides painted (leave your answers in terms of n)?

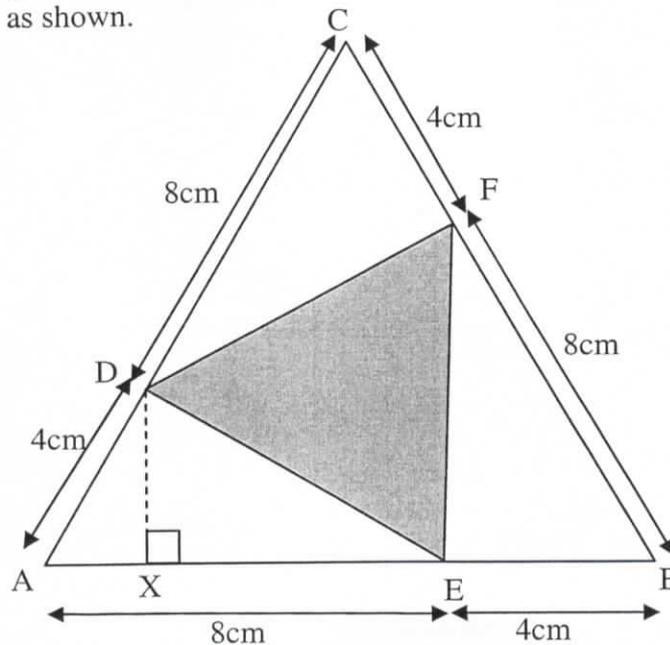
[Please turn over]

5. Adam and Brian are two runners. Adam is faster than Brian. Adam runs 1 mile in a minutes and Brian runs 1 mile in b minutes.
- How far does Brian run in a minutes?
 - If they both run for five minutes, then how much further has Adam run than Brian?
 - If $b = 10$ and over forty minutes Adam runs a mile further than Brian, then find a .

6. x and y are positive numbers chosen at random that lie between 0 and 2.
- If, for example, $x = \frac{1}{2}$ and $y = \frac{3}{4}$ then this could be represented on the diagram shown below by the point $\left(\frac{1}{2}, \frac{3}{4}\right)$.



- Draw a sketch of the above diagram and draw on it the two lines that represent all the pairs of values of x and y in which x and y differ by exactly 1.
 - Hence calculate the probability that x and y differ by less than 1.
7. In the diagram shown below the triangle DEF has all its vertices lying on the sides of the equilateral triangle ABC with side length 12cm. D, E and F are all one third of the way along the sides as shown.

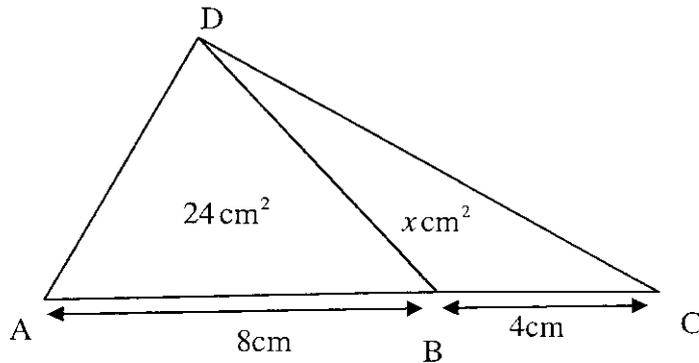


- By considering the triangle AXD as half an equilateral triangle, write down the length of AX.

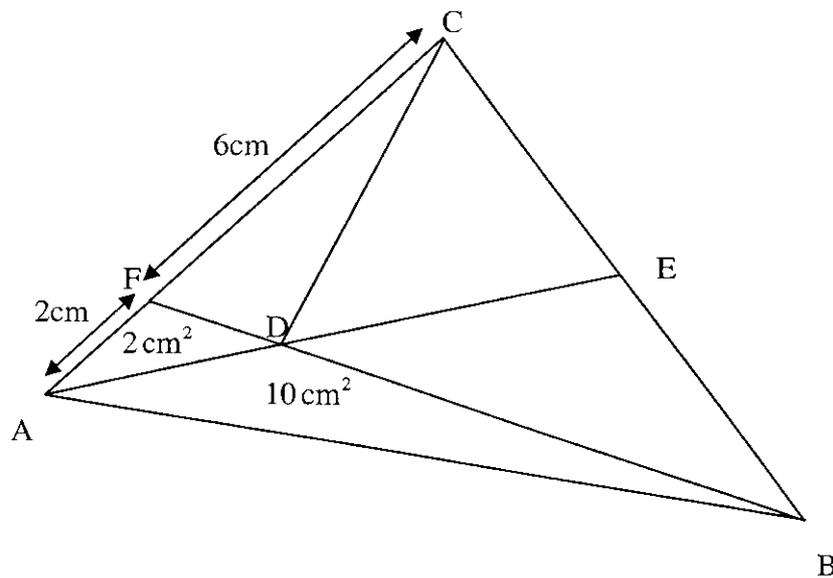
- (b) Use your answer to (a) to show that the length of DX is $2\sqrt{3}$ cm.
 (c) Use (a) and (b) to find what proportion of the triangle ABC lies in the triangle DEF (by first calculating the length of DE).

8.

- (a) In the diagram shown the triangle ABD has area 24 cm^2 . Use the fact that the triangles ABD and BCD have the same height to find x , the area of the triangle BCD .



- (b) In the diagram shown below the triangle ABC is split up into different shapes. The triangle ADF has area 2 cm^2 , the triangle ABD has area 10 cm^2 . ADE and BDF are straight lines. Find the area of the triangle DBC .



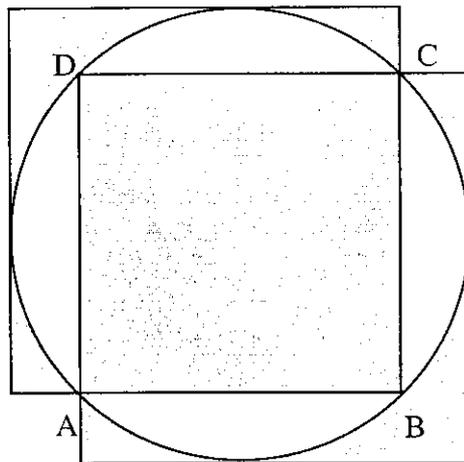
[Please turn over]

9. (a) Factorise $m^2 - s^2$.
 (b) If $m^2 - s^2 = 57$ and $m > s$ then find two possible pairs of positive whole number values for m and s .

A company sells a variety of square jigsaw puzzles which are made up of square pieces. They sell the puzzles in three sizes: small, medium and large. The medium sized puzzle has 57 more pieces than the small puzzle and the large puzzle has 203 more pieces than the medium puzzle. A 25×25 square is considered the largest possible square for these sorts of puzzles.

If the small puzzle has s^2 pieces, the medium puzzle has m^2 pieces and the large puzzle has l^2 pieces.

- (c) Explain why $m^2 - s^2 = 57$ and write down an equation involving l and m .
 (d) Solve the equation involving l and m to find the values of s , l and m .
10. In the diagram shown below the circle has radius 4cm and the square ABCD is the largest square that can be drawn inside the circle. A, B, C and D all lie on the circle. The two other squares are such that their sides touch the circle as shown.



- (a) Find the area of the smaller square.
 (b) Find the area of one of the larger squares, leaving $\sqrt{2}$ in your answer.
 (c) Find the shaded area, leaving π and $\sqrt{2}$ in your answer.

END OF PAPER

Eton College King's Scholarship Examination 2006

HISTORY, GEOGRAPHY AND DIVINITY

(One and a half hours)

The paper is divided into THREE sections. Candidates should answer THREE questions from at least TWO sections. Start each question on a NEW sheet of paper.

SECTION 1: HISTORY

1. Was William of Normandy lucky to win the Battle of Hastings in 1066?
2. How far was the Church in need of reform in England when Henry VIII broke with Rome in 1531?
3. Why did Britain develop an overseas Empire?
4. Choose any rebellion or revolution that you have studied and explain why it was successful or unsuccessful.
5. Is the study of History any more than the study of the biographies of famous men?

6. Study the picture below. It is an English cartoon from 1813. The man in shackles is John Bull, who represents the typical Englishman. The men in the background are collecting taxes and the people at the window are shouting 'Mercy on us'. The notice on the shop window says 'The stock of this shop selling off under commission of bankruptcy'. The documents at John Bull's feet say 'Bill of Rights' and 'Magna Charta' and the other piece of paper repeatedly says 'Bankrupt'.

What does this source tell you about England in the 1810s? Use the details of the source to support your answer.

[No prior knowledge of either the source or the 1810s is required to answer this question]



J. B. Martin del.

A FREE BORN ENGLISHMAN!
THE PRIDE OF THE WORLD!
AND THE ENVY OF SURROUNDING NATIONS!!!

SECTION 2: GEOGRAPHY

1. With reference to specific places, evaluate the advantages and disadvantages of 'ecotourism' for conserving areas of ecological importance.
2. Using examples that you have studied, discuss the impacts of volcanoes OR earthquakes on countries at different levels of economic development.
3. How easy is it to distinguish between 'push and pull' factors in accounting for migration to cities in less economically developed countries?
4. Explain the various ways in which water facilitates rock weathering.
5. To what extent does physical geography determine the location of different types of farming in the UK?
6. Describe and explain the differences between the climate experienced in the English cities of Manchester and London.

SECTION 3: DIVINITY

1. Why are there two different creation stories at the beginning of the Book of Genesis?
2. 'The Transfiguration of Jesus is really a story about the disciples' lack of understanding.' Discuss the story in the light of this statement.
3. Discuss and explain why there are Reform as well as Orthodox Jews.
4. 'The Qur'an is the most complete and beautiful record of God's revelation.' Discuss how the Qur'an was given in the light of this statement.
5. Discuss and assess the reasons why Christians disagree about marriage and divorce.
6. 'I go to the Buddha for refuge. I go to the Dharma for refuge. I go to the Sangha for refuge.' Discuss what it means to 'take refuge' in Buddhism.
7. Discuss how the Hindu concept of Brahman can be both personal and impersonal.
8. 'He who wishes to behold the Guru, let him search the Holy Granth' (*Guru Gobind Singh*).
To what extent is a Guru necessary in order to carry out God's will?

Eton College King's Scholarship Examination 2006

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. 'Widely read books are always good.' Discuss.
2. Are we obliged to conserve our environment?
3. In what circumstances is it permissible for a foreign power to intervene in a civil war?
4. 'Good art is more concerned with representing truth than providing enjoyment.' Discuss.
5. 'No school should be allowed to teach that the world was created in six days.' Discuss.
6. To what extent is it possible to provide a moral defence of terrorism?
7. 'The entertainment industry is inherently liberal.' Discuss.
8. 'Government is the problem not the solution.' Discuss.
9. To what extent is it possible to disprove the existence of God?
10. 'There is no such thing as reality television.' Discuss.

[End of paper]

