



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education
Advanced Subsidiary Level and Advanced Level

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THINKING SKILLS

9694/03

Paper 3: Problem Solving and Critical Thinking (Advanced)

October/November 2008

1 hour and 30 minutes

Additional Materials: Answer Booklet

* 1 3 8 0 5 3 0 3 6 2 *

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on the Answer Booklet in the space provided unless this has been done for you.

Write in dark blue or black pen.

Do not use staples, paper clips, highlighters, glue or correction fluid.

DO NOT WRITE ON ANY BARCODES.

Electronic Calculators should be used.

There are **25** questions on this paper. Answer **all** questions. Each question has two parts.

For each part of the question there are five possible answers **A, B, C, D** and **E**. Select the **one** answer you think is correct for that part.

Record your choice(s) in the separate Answer Booklet.

Start each question on a new line.

INFORMATION FOR CANDIDATES

Each question is worth 2 marks. Marks will not be deducted for wrong answers.

This document consists of **28** printed pages.



- 1 (i) Which **one** of the following is an argument?
- (ii) Which **one** of the following is an explanation?
- A** Fire walkers do not burn their feet. The burning wood does not conduct heat quickly. A layer of ash protects the foot. Each foot touches the hot wood for only a second during a 4m walk.
- B** Fuel consumption increases with speed. A petrol engine is most efficient at around 70km/h. An equivalent diesel engine performs best at 60km/h.
- C** Plants can be seen as intelligent. They can solve problems, which is normally taken as a definition of intelligence. They can plan their growth according to their surroundings.
- D** The blue whale has the biggest brain, weighing 6kg. The world's cleverest creatures have big brains in comparison with their bodies. The average owl isn't as wise as it looks.
- E** Two thirds of consumers are happy to purchase fake designer goods. Branded goods such as sunglasses, belts and key rings are of little material worth without the brand.

- 2 The world's central banks control about \$5 trillion of reserves. The key question is whether something will happen in the near future to create a financial crisis? Possibly! For an example of a financial crisis from history consider the scenario of 1914. The assassination of Archduke Franz Ferdinand led Austria to declare an ultimatum to Serbia, which was suspected of involvement in the assassination. When Serbia dismissed the ultimatum, the battle lines for the First World War were drawn. Germany took the Austrian side; the Russians lined up with the Serbs. Within days of the Austrian ultimatum the world's financial markets started crumbling.

Many experts, though, would dismiss the idea of such a 'great drain' as mere doom mongering. Full-scale wars are so rare that they lie outside the domain of risk management. Like an asteroid hitting the Earth or a global influenza pandemic, a really big war remains in the realm of uncertainty. But try reading the events of 1914 with the place names changed. Imagine the assassination of the U.S. Vice President in Baghdad this coming June. The U.S. suspects Iranian involvement and sends an ultimatum to Tehran. Israel takes the American side; Russia lines up with the Iranians... It is not a wholly implausible sequence. Some central banks admit privately that they would struggle to counter the financial crisis such a geo-political shock would trigger.

(i) Which **one** of the following statements can reliably be concluded from the above passage?

- A History warns us not to rule out an imminent stock-market collapse.
- B To consider that a financial crisis might happen in the near future is doom mongering.
- C The world's financial markets do not have adequate reserves to withstand geo-political shocks.
- D It is not wholly implausible that the US Vice President may be assassinated when visiting Baghdad, triggering World War 3.
- E Central banks should worry about the direction in which world events are moving.

(ii) The analogy of an asteroid hitting the Earth supports which **one** of the following points?

- A Trends in the world economy are unpredictable.
- B A full-scale war lies outside the domain of risk management of world markets.
- C A full-scale war will trigger a financial crisis.
- D The possibility of a full-scale world war is not wholly implausible.
- E It is unrealistic to speculate that world events could take such a drastic turn as to cause a full-scale global war.

- 3 Research has been carried out into the effect of levels of physical activity on children's ability to learn. Pupils in a Malaysian primary school were given lessons only in the morning. Their afternoons were occupied by a wide range of physical activities such as gymnastics, swimming and sport. Although these pupils had 26% less time in lessons than similar pupils in other schools, they achieved better academic results at the end of their primary education. They were also more calm and attentive, and showed fewer behaviour problems. So children who are relatively inactive will not achieve their full learning potential.
- (i) Provided it is true, which **one** of the following statements most weakens the above argument?
- (ii) Provided it is true, which **one** of the above statements most strengthens the above argument?
- A** Increased physical activity increases blood flow to the brain.
- B** Many children spend their leisure time watching television and playing computer games.
- C** The methods of teaching in the 'test' Malaysian school were very different from those in the schools with which it was compared.
- D** In a Zimbabwean school, children who had more physical exercise achieved higher arithmetic scores than similar pupils who were taught in the same way.
- E** The report of the research in the Malaysian school did not describe the family backgrounds of the pupils in the study.

4 People are always fascinated by the question as to whether there are extra-terrestrial life forms. By this they usually mean 'aliens' as portrayed in popular science-fiction series such as Star Trek. However, if there were other life forms of this type in outer space they would have visited us. If they would have sent some sort of radio signal which we would have intercepted. As this has not happened, sadly it seems we are the only intelligent life form in the universe. So the dream of meeting people from other galaxies needs to be dismissed as a fantasy. By all means go on watching science-fiction series and films, but recognise them for what they are - works of fiction with no basis in fact.

(i) Which **one** of the following best expresses the main conclusion of the above argument?

- A We must accept that we are the only intelligent life form in the universe.
- B We must dismiss the fantasy of meeting people from other galaxies.
- C Science fiction is harmless provided we treat it simply as entertainment.
- D Aliens have neither visited us nor tried to communicate with us.
- E People's fascination with the idea of extra-terrestrial life is childish.

(ii) Which **one** of the following is an assumption underlying the above argument?

- A Aliens from other galaxies would be unable to visit us.
- B Alien life forms would not be like those portrayed in Star Trek.
- C Aliens may have sent signals which we have been unable to intercept.
- D Aliens may not have reached our level of technological development.
- E Aliens would have the technology to be able to visit us or communicate with us.

- 5 People on the lunatic fringe of medical practice promote the use of herbs as medicine. Admittedly, most of the active ingredients of medicines are derived from plants, but the difference is that they have been purified, measured and rigorously tested. There is no difference between herbal medicine and medicine in terms of what is used, only in how it is delivered. Digoxin pills and foxglove both contain the same ingredient, but it is how this ingredient is delivered that differs. Until a herbal practitioner can show that giving a whole plant instead of an extract really is better, their claims completely lack credibility.

What function do the following elements of this argument fulfill?

- (i) Most of the active ingredients of medicines are derived from plants.
 - (ii) Digoxin pills and foxglove both contain the same ingredient.
- A Assumption.
 - B Counter-assertion.
 - C Example.
 - D Intermediate conclusion.
 - E Reason.

- 6 When something is made to a specified number of units it is usually made to high precision. At least because it is a waste of material to provide more, but when a measurement of something of a similar nature is made, a value such as 3.5m merely indicates somewhere between 3.45m and 3.55m.

A measuring jug is being slowly filled with water at a constant rate. The measurement to the nearest 0.1dl at 9 am was 5.1dl, at 10 am it was 6.2dl, and at 11 am it was 7.2dl.

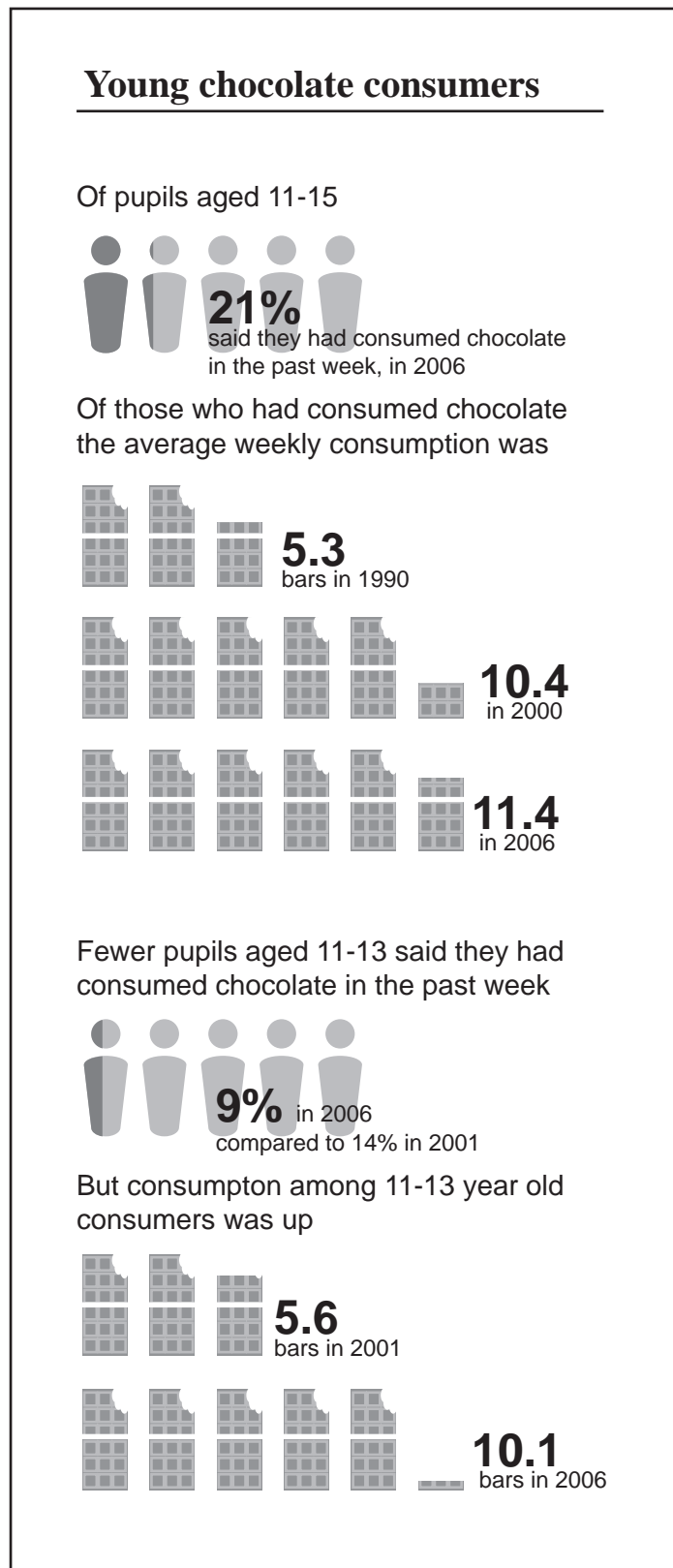
(i) What is the **least** amount of water that there could be at 1 pm?

- A just over 9.15dl
- B 9.16dl
- C just under 9.2dl
- D 9.25dl
- E 9.3dl

(ii) What is the **greatest** amount of water that there could be at 1 pm?

- A just under 9.2dl
- B 9.3dl
- C just under 9.45dl
- D 9.46dl
- E just over 9.5dl

- 7 Statistics in newspapers may not always be very useful. In the example shown, it seems little value in comparing the 11-15 group with the 11-13 group, or 1990 in one case and 2001 in the other. However, with a little work, some more interesting figures can be obtained.



(i) What, approximately, is the percentage change in claimed consumption by 11-13 year olds chocolate consumers between 2001 and 2006?

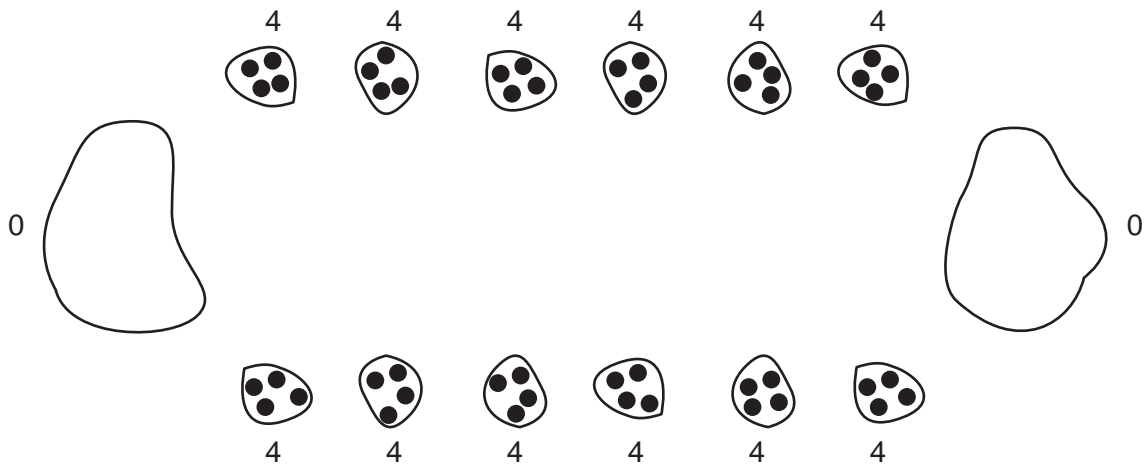
- A A drop of 36%
- B A drop of 5%
- C A rise of 4.5%
- D A rise of 10%
- E A rise of 80%

If it is assumed that there are the same number of people in each single year age group (11, 12, 13 etc.), we can separate the 11-13 figures from the 14-15 figures.

(ii) If this assumption is made, what percentage of 14-15 year olds reported having consumed chocolate in the week of the survey in 2006?

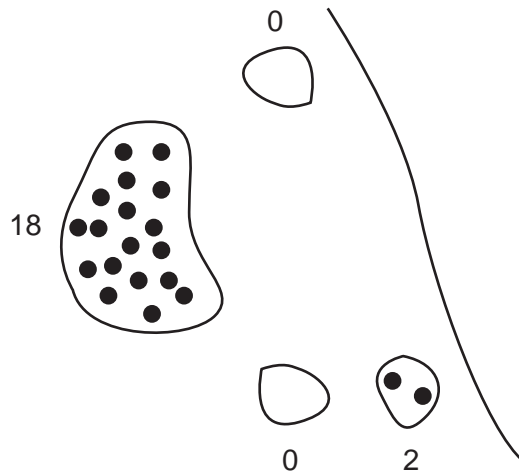
- A 12%
- B 21%
- C 29%
- D 33%
- E 39%

- 8 In our version of the game mankala the two players sit opposite each other. Each has six circular 'play' pits directly in front of him, and a larger 'home' pit on the player's right. Four stones are placed in each 'play' pit at the start of the game, and the 'home' pits are empty as shown here.



There are various rules about how the stones are re-arranged from one pit to another. The game ends when one player has no more stones in his 'play' pits. The player's final score is given by the total number of stones in all his pits, including his 'home' pit.

At the end of a game I can only see part of the board:



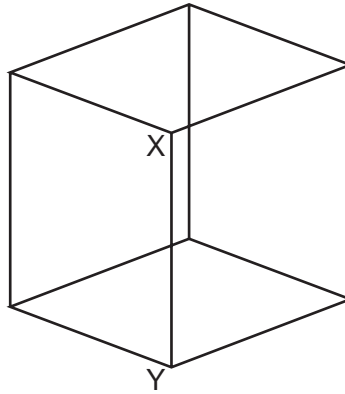
(i) How many **more** stones did the winner have than the loser?

- A 6
- B 8
- C 12
- D 16
- E 30

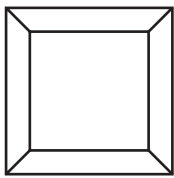
(ii) What is the **maximum** number of stones that could be in the winner's 'home' pit?

- A 2
- B 4
- C 18
- D 28
- E 30

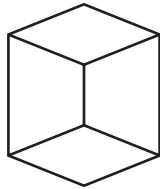
- 9 The illustration below shows a cubic frame made up of identical thin rigid rods.



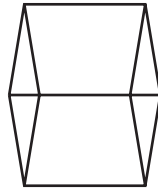
- (i) If such a cube were suspended in front of a bright point light and its shadow cast onto a wall, which **one** of the following could **not** be the appearance of the shadow?



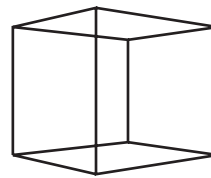
A



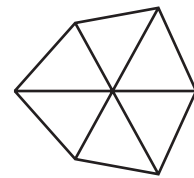
B



C



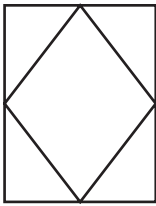
D



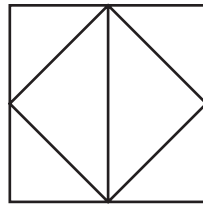
E

The front rod (as shown in the original picture) was removed and the corners at its top and bottom (X and Y) joined together (without bending the edges and without moving the other 6 vertices).

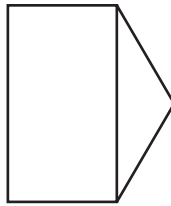
- (ii) Which **one** of the following shows the new shape viewed from some direction in plan or elevation (not necessarily from the same viewing position)?



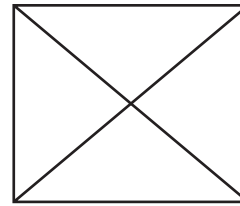
A



B



C



D

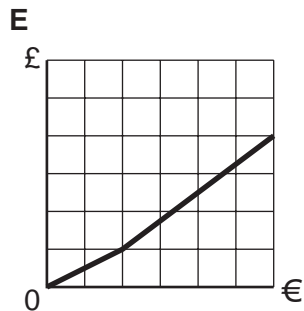
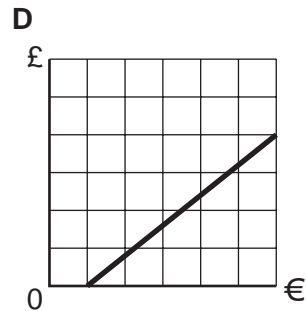
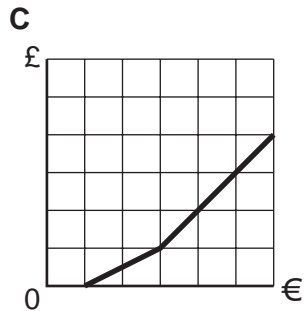
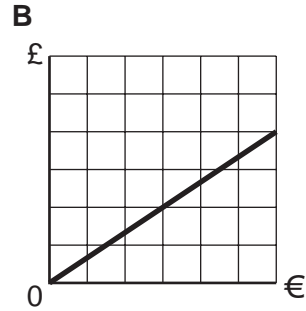
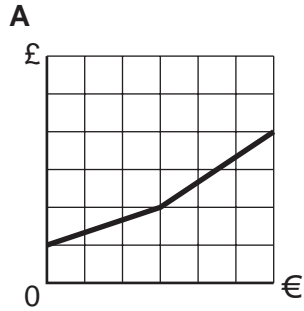


E

10 There are various different methods for dealers to make money when converting. Some offer a fixed rate of commission. Others claim to charge no commission but then give a not-so-good rate. Others charge a fixed transaction fee. Some charge a minimum maximum amount of commission.

(i) Which **one** of the following is **not** a credible graph of the amount in pounds (£) when exchanging euros (€)?

(ii) Which **one** (of the others) gives the best rate for changing very small amounts of euros?



11 A rich businessman has founded a competition with an annual cash prize to be awarded to a political leader who is judged to have been most free from corruption. Although his intention to encourage politicians to use their power for the benefit of the people instead of building up their private fortunes is praiseworthy, the method he has chosen is doomed to failure. Given the choice between the certainty of building financial security for one's retirement by means of bribes and the possibility of winning a prize by refusing every opportunity to make money out of one's position, no one will choose the second option.

- (i) Which **one** of the following best expresses the conclusion of this argument?
- (ii) Which **one** of the following best expresses an unstated assumption in this argument?
- A** Financial gain is the dominant motive influencing politicians' actions.
- B** It is good that the businessman is trying to encourage politicians to be honest.
- C** The businessman's plan will not achieve its aim.
- D** There are many opportunities for politicians to exploit their position for personal financial gain.
- E** Very few politicians can resist the temptation to enrich themselves at the expense of the people.

12 (i) Which **one** of the following is an argument?

(ii) Which **one** of the following is an explanation?

- A** A survey of 32-year-olds in New Zealand has found that those in high-stress jobs run twice the risk of serious depression as those in low stress jobs. Time pressure is the single most important cause of stress.
- B** Job stress is rising world-wide with one third of workers in industrialised countries affected. The least stressful jobs involve looking after children at home and the most stressful jobs involve time pressure, hard physical conditions and the possibility of public humiliation.
- C** Deadlines can bring excitement as well as fear. Unpredictability and variety prevent boredom. The loss of work, through redundancy or retirement, may cause a worse reaction than the stress of doing the work.
- D** One in twenty cases of depression or anxiety is because of high stress at work. Work-related stress leads to financial loss for companies as well as suffering for individuals. Employers need to find ways of reducing stress at work.
- E** Women tend to be more affected by stress-related illness than men. The reasons are thought to be hormonal, the burden of motherhood and the tendency of bright women to hide their talents and accept lower-level work so as not to outshine their male partners.

13 Concern about the pollution caused by fossil fuels and about the possible dangers of nuclear power has led to the quest for alternative, renewable sources of energy. Thus wind turbines that can generate electricity have been developed. Many people living close to these turbines complain about the noise they make and see them as spoiling the landscape. But the most serious problem with them is that in periods of calm weather, they cannot generate sufficient electricity. Demand for electricity is so high that we cannot possibly rely on a source of energy which will fluctuate in its production. We need to generate power every day of the week - and that is why wind turbines are not a viable source of energy.

(i) Which **one** of the following, if true, most weakens the above argument?

- A Wind turbines are a valuable complement to other sources of energy.
- B Many people regard wind turbines as an attractive addition to the landscape.
- C Wind turbines are sensitive and sited to maximise any air movement.
- D Reducing the demand for energy could help to solve energy problems.
- E Power generated by wind turbines on a windy day cannot be stored for future use.

(ii) Which **one** of the following best expresses the meaning of 'viable source of energy' in the last sentence of the passage?

- A A source that will provide all the energy needs of the country.
- B A source that reliably produces a sufficient level of electricity.
- C A source that can generate sufficient electricity to replace nuclear power.
- D A source that causes no damage to the environment or landscape.
- E A source that will not provoke objections from local communities.

14 For almost the whole of human history, all parents and teachers have known that the cane is one essential piece of educational technology. Almost everyone nowadays seems to imply that children are already rational beings, capable of making their own decisions. However, this is a great mistake. They have to develop that ability gradually, by discovering through experience that bad choices are painful and good choices rewarding. Those countries which have abolished the use of the cane in the home and in school are now experiencing the consequences of that ill-advised decision. The solution to the problems of indiscipline and anarchy in society is obvious: bring back the cane.

(i) Which **one** of the following expresses the main conclusion of the passage?

- A Bad choices cause pain and good choices bring rewards.
- B Canes should be brought back into homes and schools.
- C Children are already capable of thinking issues through and making responsible choices.
- D Indiscipline and anarchy are major problems in society today.
- E Teachers and parents cannot do their job properly without a cane.

(ii) "...children are already rational beings, capable of making their own decisions."

What is the function of this element in the structure of the argument?

- A Example.
- B Background information.
- C Counter-assertion.
- D Intermediate conclusion.
- E Reason.

15 A newspaper reported:

Recent advances in technology have put astronomers in a position to discover a second Earth-like planet. This means that the search for extra-terrestrial life, that constant human preoccupation, will soon achieve its goal of proving that life exists elsewhere in the universe. Scientists have developed techniques which will enable them for the first time to detect the presence of small, rocky planets, like our own, around distant stars. These planets are the most likely location for extraterrestrial life. Until recently, these methods have been sensitive enough to pick up only planets far more massive than Earth, but improvements now make the discovery of a second Earth highly likely. The places where life is most likely to exist will be planets which lie just the right distance from a star, so that it is neither so hot that water evaporates, nor so cold that it remains permanently frozen.

Two students read this report.

- (i) Student 1 commented, "It is highly likely that we shall be able to make contact with life on other planets within the foreseeable future."
- (ii) Student 2 replied, "Even if another planet fulfils the necessary conditions for life, that by no means guarantees that life will exist there."

Has each of these students:

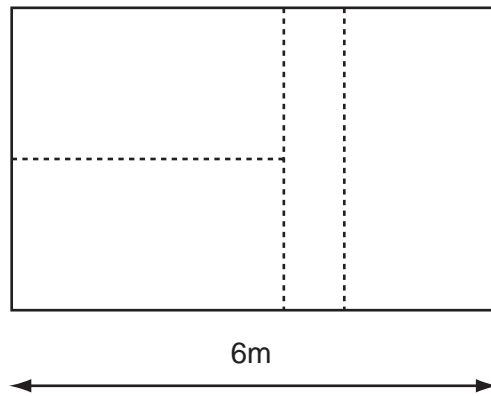
- A Expressed the conclusion fairly and accurately?
- B Expressed the conclusion too strongly?
- C Identified a flaw in the reasoning?
- D Identified the wrong part of the argument as the conclusion?
- E Not expressed the conclusion strongly enough?

- 16 The figures below show installation cost, annual savings and Carbon Dioxide (CO₂) savings for various alternative energy systems for my house.

	System	Typical Installation Costs	Typical \$ saving per year	Typical CO ₂ saving per year
Solar photovoltaics	2 kW	\$10,000	\$135	850 kg
Wind turbine	2.5 kW	\$11,000	\$200	1500 kg
Solar water heating	4 m ²	\$4,000	\$50	400 kg
Biomass (pellet) boiler	15 kW	\$8,000	\$300	6500 kg
Ground source heat pump	6 kW	\$9,000	\$700	5000 kg

- (i) Which is the most cost effective system in terms of payback time?
- (ii) If one buys such a system, the capital cost paid out will result in a loss of interest from the purchaser's investments. If this loss is calculated at 5% simple interest on the capital, some systems are then seen to lose money. Which loses the most?
- A Solar photovoltaics.
- B Wind turbine.
- C Solar water heating.
- D Biomass boiler.
- E Ground source heat pump.

- 17 An office 6m long is to be divided up into three spaces equal in area and shape as shown (not to scale) for the use of three marketing administrators.

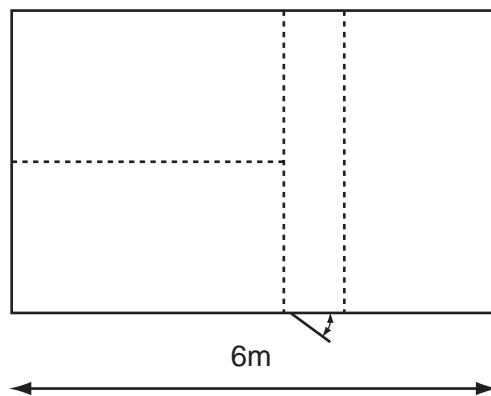


NOT TO
SCALE

- (i) What is the area of each space?

- A 4 m^2
- B 8 m^2
- C 12 m^2
- D 18 m^2
- E 24 m^2

The door is in the lower wall of the office (as shown on the plan below). At a later stage, a 1m wide corridor is put into the office so visitors do not disturb the workers they are not meeting:



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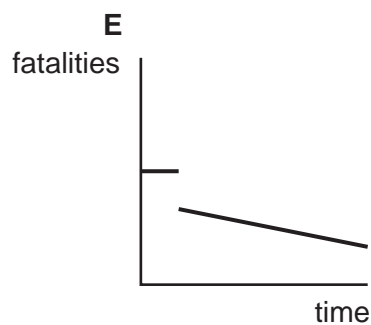
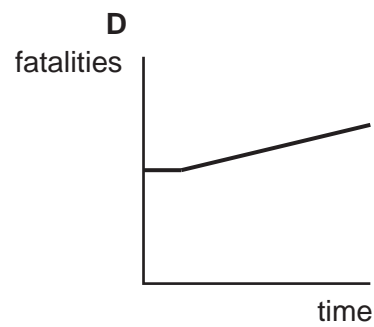
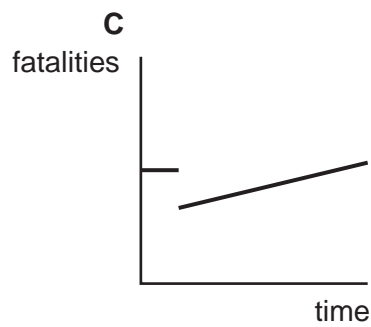
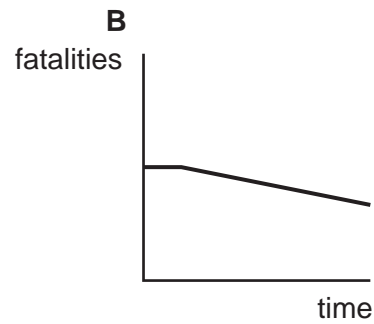
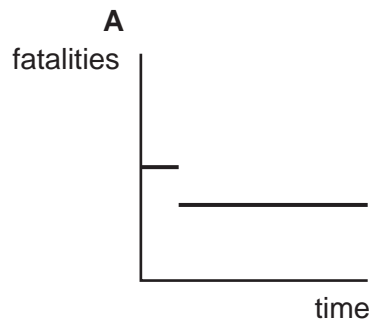
The administrators' spaces are adjusted so they all have the same area.

- (ii) What is the new area of the three offices?

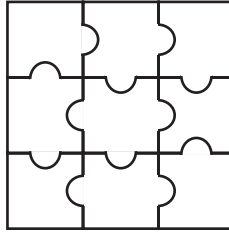
- A 6 m^2
- B $6 \frac{2}{3} \text{ m}^2$
- C 7 m^2
- D $7 \frac{1}{3} \text{ m}^2$
- E 8 m^2

18 At the same time as a new range of improved brakes was introduced on new cars, speed limits were introduced and enforced. The brake manufacturers claimed that the reduction in road fatalities on the road was only because of the brakes. The transport authorities suggested that the reduction was purely a result of the reduction in speed limits.

- (i) Which **one** of the following graphs supports the conclusion that the change was entirely the result of the new brakes?
- (ii) Which **one** of the following graphs supports the conclusion that the change was entirely the result of the change to the speed limit?



- 19 A simple square jigsaw is made up of nine pieces, each based on a square, with the edges between pieces being either indented or protruding. The pieces on the outside have one edge which is indented or protruding, except for the corner pieces, which have two straight edges. There is a picture on one side of each piece and the other is plain, so it is clear which face should be visible. There are many possible jigsaw puzzles. Here's one:



- (i) How many different shapes could the central piece have?

- A 4
- B 5
- C 6
- D 8
- E 16

- (ii) How many different shapes can the piece at the middle of the top row have?

- A 3
- B 4
- C 5
- D 6
- E 8

- 20 The paintings to be shown in an exhibition are to be selected by 3 judges (Mr Blunt, Mrs Proud and Mrs Proud). 90 paintings have been submitted and 30 are to be selected. The selection will be done in a series of rounds.

In the first round of judging, each judge chooses his or her top 10 paintings. Every painting chosen, even by one judge, will be selected for the exhibition. There will, almost certainly, be overlaps between the judges' choices, so fewer than 30 will be selected and extra rounds of judging will be needed.

In each subsequent round $\frac{1}{3}$ (to the nearest whole number rounded down if necessary) of the remaining paintings to be selected are chosen by each judge. Every picture chosen is still selected. For example, if 20 paintings in total were selected in the first round, there would be 10 left and each judge would choose 3 in the second round from those not yet selected.

When there are only one or two pictures left to be chosen, the judges will come to a consensus about these.

- (i) Of the paintings exhibited, what is the **biggest** number that could have been chosen by Mr Blunt only and not the other two judges?

- A 10
- B 14
- C 15
- D 20
- E 30

- (ii) If in the first round of judging, 24 pictures received one or two votes and none was selected by all three judges, how many were chosen by two of the three judges?

- A 2
- B 6
- C 10
- D 14
- E 18

21 The writer Aldous Huxley said that technological progress had merely provided us with an efficient means of going backwards. With military technology he has a point: can we describe a technology that kills people more efficiently as progress? And since technology in general is exploited relentlessly for military purposes, and since technological progress advances at a gathering pace during times of war, it is clear that what he said has more than a grain of truth and seriousness in it.

(i) The **one** main conclusion argued for in the passage is that:

- A There is an element of seriousness behind Huxley's remark.
- B Technology takes us backwards not forwards.
- C In the case of military technology, Huxley has a point.
- D Huxley was not being facetious when he made his remark.
- E Killing people more efficiently is not progress.

(ii) Before the Iraq War military advisers claimed that the new 'smart bombs' and guidance systems make for pinpoint targeting and minimal loss of civilian life. Like the bombs, these claims have all too often been shown to be wide of the mark.

Which **one** of the following best describes the impact of this comment on the main argument?

- A It strongly supports Aldous Huxley's claim.
- B It is further evidence in support of the argument.
- C It seriously weakens the argument.
- D It exposes a flaw in the reasoning.
- E It misses the point of the argument.

22 There are many reasons why we conceal our emotions – embarrassment, not wanting to be rude, to avoid an argument, to deceive others. Most of us find it hard to read people's emotions when they are hiding them. However, we do give off very small clues, or micro-expressions, when we are not being honest about how we feel and 1% of the population is good at reading them. Sometimes it would be beneficial if more of us were better at reading emotions. The police might treat you better if they were able to read the subtle signs that would tell them you were looking uncomfortable because being interviewed was shameful, not because you were lying about having committed a crime. Security officials might find it helped them to detect terrorists. It would be good if such people could attend government-funded training courses in how to interpret micro-expressions.

(i) Which **one** of the following is an assumption underlying the argument?

- A Judging hidden emotions is a skill that can be learned.
- B Most of us are honest about how we feel most of the time.
- C Most of us feel bad if we are not being honest about our emotions.
- D Police and security officials would benefit most from developing this skill.
- E Only police and security officials would benefit from learning to read emotions.

(ii) 'Government-funded mind reading is a truly terrifying thought. If the government could find out our hidden thoughts and feelings, our civil liberties, particularly our right to privacy and freedom of opinion, would be at some risk.'

This response to the passage is best characterised as:

- A A genuine concern which is somewhat exaggerated because it treats judging hidden emotions and reading hidden thoughts as the same.
- B A reasonable concern if you are a criminal, but innocent people who have nothing to hide should have nothing to worry about.
- C An entirely reasonable counter-argument to the reasoning in the passage.
- D A sweeping generalisation which assumes that governments are corrupt and want to invade the private lives of the people.
- E A slippery slope rushing from a training proposal to the completely implausible conclusion that this endangers our freedoms.

23 In response to the current rise in the number of patients who pick up life-threatening infections in British hospitals, the Government has announced that hospitals which fail to meet standards for hygiene will be subject to heavy fines. That policy is _____. First the Government sends money to a hospital, then takes some of it back in a hefty fine, leaving the hospital with a financial deficit to hamper its attempts to improve standards. Inevitably, it will be patients who suffer. Surely the obvious answer is that the person or persons in charge of departments responsible for hygiene should lose their jobs. That way the hospital does not acquire a deficit and those responsible are replaced.

(i) Which **one** of the following statements best expresses the conclusion of this argument?

- A A policy of dismissing hospital managers who fail to meet standards for hygiene will have a double benefit.
- B Hospitals which fail to meet standards for hygiene will be punished by heavy fines.
- C Managers responsible for hygiene in hospitals which fail to meet standards for hygiene should lose their jobs.
- D Patients will suffer from a policy of fining hospitals which fail to meet standards for hygiene.
- E Urgent action needs to be taken in response to the increasing problem of patients becoming infected in hospitals.

(ii) Which **one** of the following words or phrases, inserted in the blank space, most logically completes the passage?

- A an indication of how seriously the Government regards the problem.
- B likely to solve the problem.
- C long overdue.
- D misguided.
- E only a partial solution.

24 Our species, homo sapiens, is about 200 000 years old. Statisticians have calculated that there is a 95% chance that the human race will last at least another 5100 years, but less than another 7.8 million years. Notice that 7.8 million years is a far shorter time than the estimated lifetime of the sun. It is a warning that we may become extinct by some ordinary catastrophe long before the planet's oceans boil. It seems that we do not have billions of years to get off earth: we have to colonise before we become extinct here. What makes things more urgent is that we may not be able to sustain our space programme in the future so we need to go as soon as possible if the human race is to survive.

(i) Which **one** of the following is an assumption underlying the above argument?

- A 7.8 million years is probably a suitable lifetime for a species.
- B Colonising a different planet will extend the natural lifetime of the species.
- C Homo sapiens may evolve into a different species.
- D The human space programme is likely to continue for several centuries.
- E Things other than ordinary catastrophes could end the human species.

(ii) Which **one** of the following best expresses a weakness in the argument?

- A The author doesn't consider that it may be better if the human species died out sooner rather than later.
- B The author doesn't consider the disadvantages of life in a space colony.
- C The author uses inadequate statistics to inform the argument.
- D The author uses past events to make predictions about the future.
- E The author uses statistical probabilities to make predictions with certainty.

25 The main purpose of a museum is to educate people so it is right that museums are organised in a chronological way, i.e. having rooms at the beginning dealing with ancient history and moving on to the recent past. By showing how societies develop over time and how events in the past influence events which follow, an understanding of history will be improved. Therefore the primary aim of the museum will have been achieved.

(i) Which **one** of the following expresses the main conclusion of the above argument?

- A An understanding of history will be enhanced through a chronological approach.
- B It is right that museums are organised in a chronological way.
- C Museums should show how events in the past influence events which follow.
- D The main aim of a museum is to educate people.
- E The primary aim of a museum will be achieved if it is organised chronologically.

(ii) Which **one** of the following is an assumption that the author expects the reader to make?

- A Historical understanding can only be achieved through visiting a museum.
- B Historical understanding is the only way a knowledge of the past can be achieved.
- C Historical understanding is the particular educational purpose of a museum.
- D Historical understanding is best achieved using chronological sequences.
- E Historical understanding will result from people visiting a museum.