

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

THINKING SKILLS

8436/01

Paper 1 Multiple Choice

November 2006

2 hours

Additional Materials: Multiple Choice Answer Sheet
Soft clean eraser
Soft pencil (type B or HB is recommended)

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.

There are **45** questions on this paper. Answer **all** the questions.

For each question there are five possible answers **A, B, C, D** and **E**. Choose the one you consider correct and record your choice in pencil on the separate answer sheet.

Read very carefully the instructions on the answer sheet. Ignore responses numbered 46–50 on the answer sheet.

INFORMATION FOR CANDIDATES

Each correct answer will score one mark. A mark will not be deducted for a wrong answer.

- 1 The sequence of traffic lights (as seen by drivers coming from one direction) at a road junction in Bolandia is as follows:

Green, Amber, Red, Red and Amber together, Green, etc.

Which of the following schematic diagrams represents this sequence? (A **black** block indicates that colour light is on).



- 2 The table below shows the top 10 countries in the medal table at the 2004 Olympics and their country's population.

Country	Gold	Silver	Bronze	Population (millions)
USA	35	39	29	297
China	32	17	14	1313
Russia	27	27	38	142
Australia	17	16	16	20
Japan	16	19	12	128
Germany	14	16	18	83
France	11	9	13	60
Italy	10	11	11	57
Korea	9	12	9	48
Great Britain	9	9	12	59

In terms of total medals won per million population, Australia is clearly the best of these countries with 49 medals among 20 million population.

Which of the above countries did **worst** in terms of total medals per million population?

- A Great Britain
- B USA
- C China
- D Russia
- E Germany

Use the following information to answer questions 3 and 4.

Barchester Central	06.00	08.00	09.00	10.00	11.00	12.00	13.00	15.00	16.00	18.00	20.00
Barchester Railway Station	..	08.05	09.05	10.05	11.05	12.05	13.05	15.05	16.05	18.05	20.05
Three Mile Bridge	..	08.15	09.15	10.15	11.15	12.15	..	15.15	..	18.15	..
Little Ridding	..	08.25	..	10.25	..	12.25	..	15.25	..	18.25	20.20
Benwick Green	..	08.30	..	10.30	..	12.30	..	15.30	..	18.30	..
Benwick Priory	..	08.35	..	10.35	..	12.35	..	15.35	..	18.35	..
Great Ridding	..	08.45	09.30	10.45	11.30	12.45	..	15.45	..	18.45	20.30
Southover	..	08.55	09.35	10.55	11.35	12.55	..	15.55	..	18.55	..
Seddon Cliffe	..	09.00	..	11.00	..	13.00	..	16.00	..	19.00	..
Seddon	06.30	09.05	09.40	11.05	11.40	13.05	13.30	16.05	16.30	19.05	20.40

3 At what time does the last bus to call at Benwick Priory arrive at Seddon?

- A 09.05
- B 18.05
- C 18.35
- D 19.05
- E 20.40

4 How many buses make the journey from Little Ridding to Great Ridding?

- A 5
- B 6
- C 7
- D 10
- E 11

- 5 On a country's Passport Application Form the box for "Date of Birth" appears as follows:

D	D		M	M		Y	Y	Y	Y
---	---	--	---	---	--	---	---	---	---

where **D** is day, **M** is month and **Y** is year.

Very few people can complete this box using 8 **different** digits.

The last date of birth for which this is possible is 25th June 1987 which is written as:

2	5		0	6		1	9	8	7
---	---	--	---	---	--	---	---	---	---

In which year will the next date of birth occur that can be expressed in the form

D	D		M	M		Y	Y	Y	Y
---	---	--	---	---	--	---	---	---	---

using 8 **different** digits?

- A 2013
 - B 2034
 - C 2134
 - D 2145
 - E 2345
- 6 There is no health without mental health. Depression, for example, often causes people to feel physical symptoms. Treating the symptoms rather than the depression will not cure the patient. Depression reduces a person's ability to work, and poverty (brought on by unemployment) can cause or exaggerate depression. This leads to a vicious circle of deprivation and mental illness, which is worst in the poorest countries in the world. Aid and public health agencies should therefore treat mental health as an integral part of health in these countries.

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

- A Depression makes it harder for a person to work.
- B Depression causes poverty, which causes more depression.
- C Physical pain is caused by mental illness.
- D The poorest countries in the world should concentrate on programmes for physical health.
- E Mental health issues should be an important part of health care in poor countries.

- 7 All the great scientists of the past were interested in science from an early age. So your old daughter would not become a great scientist if she were not already interested in the subject. But your daughter has had a passion for science from an early age. So you can be assured that if she does choose a career in science, she will one day be a great scientist.

Which of the following identifies the **flaw** in the above argument?

- A It assumes that most girls are not interested in science from an early age.
 - B It assumes that one's interests at an early age determine one's choice of career.
 - C It assumes that the great scientists of the past did not have other interests at an early age.
 - D It assumes that all those interested in science from an early age can become great scientists.
 - E It assumes that those children who have always been interested in science are more intelligent than others.
- 8 The polarisation of views on parents' right to smack their children poses a dilemma for the Government. Anything short of an outright ban lays the Government open to a charge that they are turning a blind eye to assault. All the same, a ban would be the wrong course of action. For a start it would criminalise decent parents everywhere who defend their right to use moderate physical punishment as a last resort, especially when a child's immature behaviour is a danger to themselves or others. This is responsible parenting and, though it may be assault in the strictest sense, it does no serious harm. It is for the child's own good.

Which of the following is **most in need of clarification** before accepting or rejecting this argument?

- A The extent to which the population is divided in its views on smacking children.
- B The extent to which a law banning smacking could be effectively enforced.
- C The point at which a physical blow stops being moderate and becomes serious harm.
- D The age at which a child becomes an adult and acquires adult's rights.
- E The extent to which children's immature behaviour puts them in danger.

- 9 In an argument there must be a conclusion, and one or more reasons given to support the conclusion.

From the above definition, which of the following is most obviously an **argument**?

- A The discovery of a new planet was made in Chile. The telescope used a technique called Doppler shift. The planet appears to be the smallest yet discovered orbiting a star other than the Sun.
 - B The newly discovered planet is 14 times the mass of the Earth. Scientists think it could be a rocky planet. It is orbiting at less than a tenth of the distance between the Sun and the Earth.
 - C Life will not be found on the planet that has just been discovered. It is exposed to temperatures of several hundred degrees. These temperatures are too hot to sustain life.
 - D Scientists first discovered a planet orbiting another star in 1995. Since then more than 120 such planets have been found. All of them are large and gaseous like Jupiter.
 - E Scientists have not found a new planet with liquid water. A planet with only frozen water is too cold to sustain life. On a very hot planet there is no water.
- 10 Historical films and period TV dramas may contain inaccuracies. An event may be referred to that had not yet occurred, and objects may be shown that simply did not exist at that time. It is very difficult to ensure that everything on a film or TV set is appropriate to the period in which it is set. A film, for example, may require a chandelier from the 1920's, and the production team may not have the resources to either track one down or to recreate one. They will be forced to use a modern one. Therefore, film companies would do better to only produce contemporary dramas. This would save a great deal of time and money, and increase the viewer's enjoyment.

Which of the following, if true, would most **weaken** the above argument?

- A Many people still prefer historical films and dramas to contemporary ones.
- B Remakes of classic films are often less successful than the originals.
- C There is pressure on film companies to make low-budget films.
- D It is the Art Director's responsibility to arrange the props on a film set.
- E Cinema is becoming increasingly popular, especially among young people.

- 11 3-day and 5-day rover tickets can be bought that allow unlimited travel on all public transport in Bolandia for 3 and 5 days respectively, including the day of issue.

This table shows how many rover tickets were issued up to the 12th of the month.

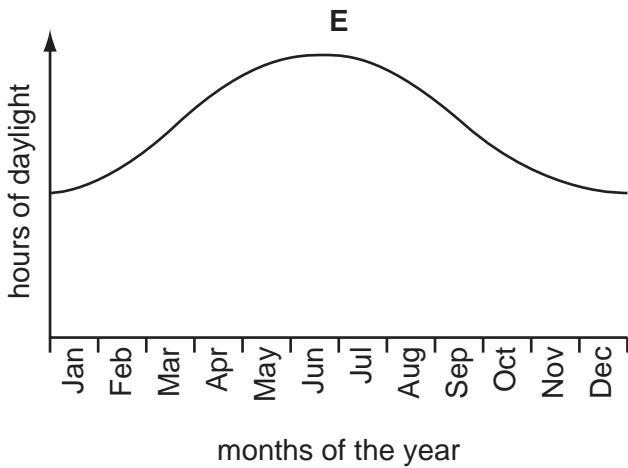
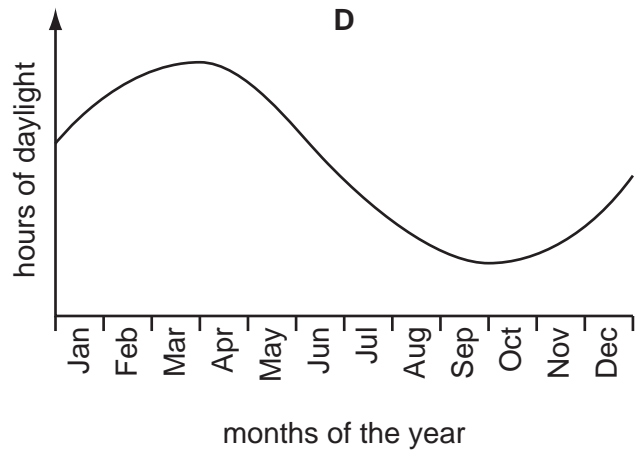
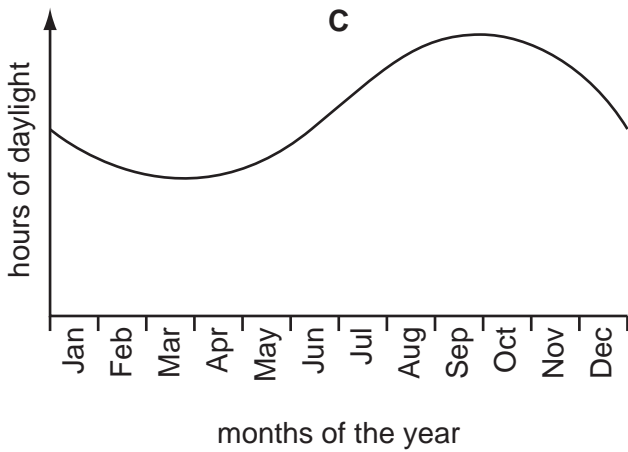
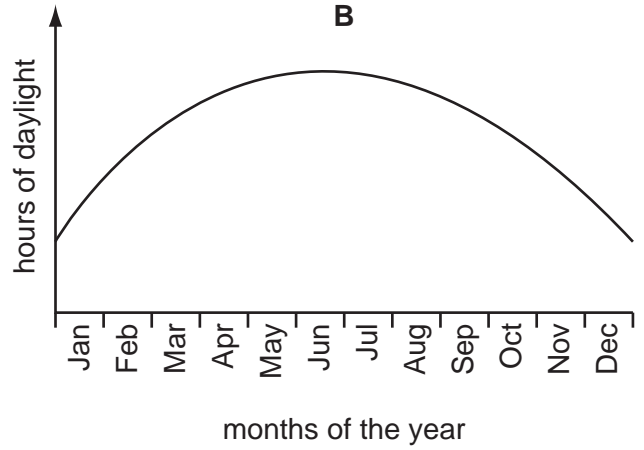
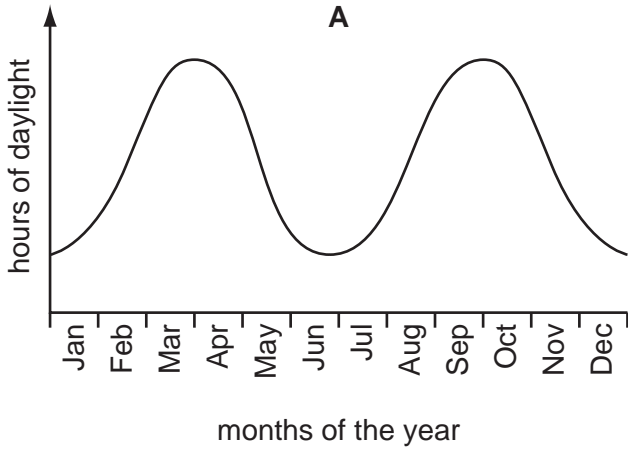
Date	3-day tickets	5-day tickets
1st	43	58
2nd	29	63
3rd	37	67
4th	28	49
5th	37	46
6th	38	50
7th	31	55
8th	25	48
9th	29	52
10th	38	47
11th	26	41
12th	40	46

How many rover tickets expired on the 9th?

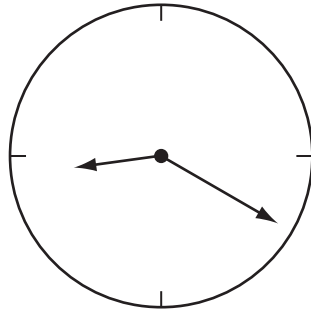
- A 77
- B 81
- C 84
- D 87
- E 80

12 Except at the equator, the hours of daylight vary throughout the year. In a northern country such as Britain, the summer solstice (the day with the most daylight hours in the year) occurs around June 21st. The winter solstice (the day with the fewest daylight hours in the year) occurs around December 22nd. The most rapid change in daylight hours occurs at the equinoxes around March 21st and September 23rd.

Which of the following graphs could represent the hours of daylight throughout the year in Britain?



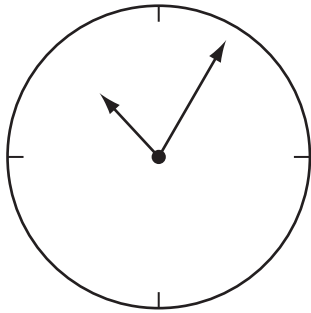
- 13 Visiting my aunt recently I was puzzled by the clock on her living room wall, which follows when I first noticed it:



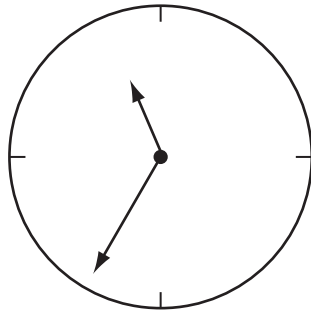
It took me a while to realise that she had put it on the wall upside down.

How did it appear when I left, $2\frac{1}{4}$ hours later?

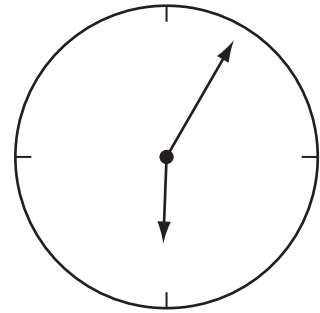
A



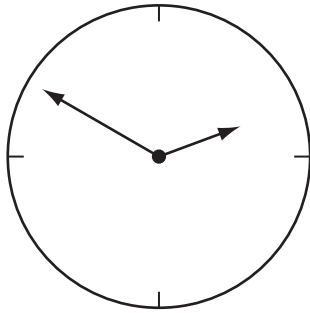
B



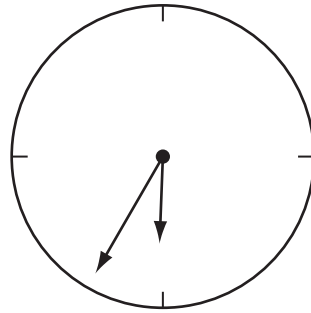
C



D



E



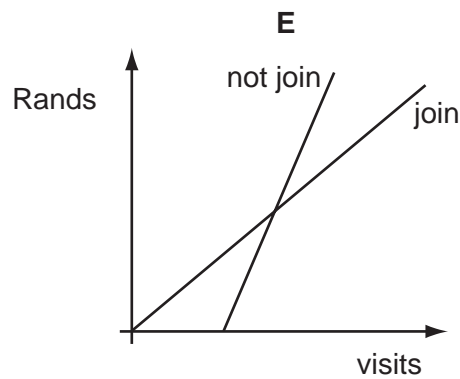
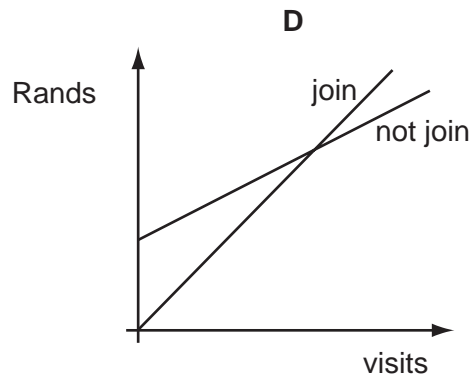
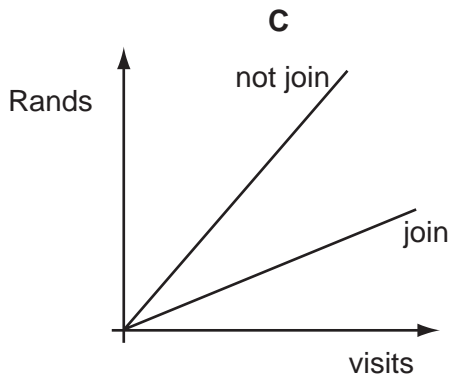
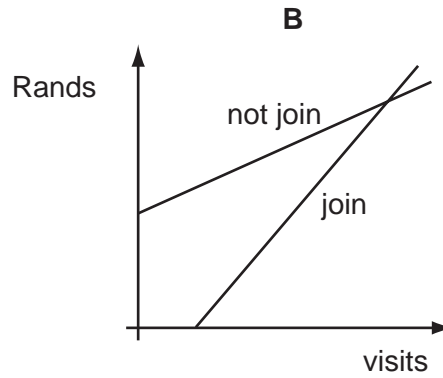
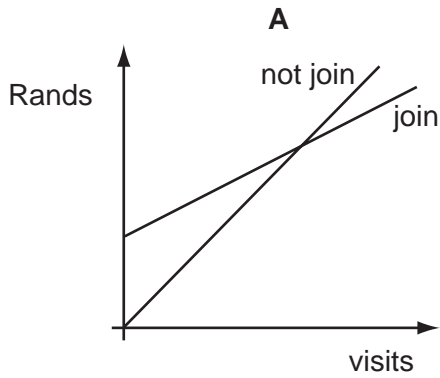
- 14** The Rios family are travelling from Boland City to Westpoint by train. The total single fare for a family of two adults and three children is \$84. The adult fare is exactly twice the child fare. How much will her single adult fare be?

How much will her single adult fare be?

- A** \$12
- B** \$18
- C** \$24
- D** \$28
- E** \$48

- 15 Mary lives in South Africa and goes to the local swimming pool. She has to pay 3 Rands for each visit. She could join the swimming club at an annual subscription of 20 Rands, which entitle her to pay just 1 Rand for each visit. Mary drew a graph comparing her expenditure (Rands) on swimming if she joins the club to her expenditure if she does not join.

Supposing she drew the graph correctly, which of the following graphs could be the one she drew?



- 16 Since the River Thames in London has been cleaned up, the North Sea into which it flows is now much less polluted. This has led to the presence in the North Sea of some species of fish which would not be there if there was significant pollution. One of these unusual species is a sea horse which _____ . So there must also have been a rise in the temperature of the North Sea, probably due to global warming.

Which of the following phrases, inserted into the blank space, **most logically completes** the above passage?

- A has no scales, unlike other fish
 - B is extremely sensitive to dirty water
 - C has a different diet from other sea horses
 - D is recognisable due to its unusually short snout
 - E has previously only been found in warmer waters
- 17 Scientists are about to carry out the biggest investigation yet into the causes of heart disease. People suffering from the condition have been asked to come forward with a brother or sister to help with the research. Through this, it will be possible to identify the genetic coding which makes people particularly susceptible to early deterioration of the heart. So, by examining genetic make-up, we will be able to identify those individuals who are at risk of developing heart disease.

Which of the following is the best statement of the **flaw** in the above argument?

- A It assumes that modern science has the power to cure all diseases and stamp them out entirely.
- B It ignores the fact that there may be factors other than genetics putting people at risk of heart disease.
- C It assumes that people do not wish to know which disease they are prone to due to their genes.
- D It ignores the fact that the cost of the research may outweigh any financial benefits resulting from a cure.
- E It assumes that all sufferers of heart disease have a brother or sister who is willing to participate.

- 18 In an argument there must be a conclusion, and one or more reasons given to support the conclusion.

From the above definition, which of the following is most obviously an **argument**?

- A The chances of a serious accident on a bicycle are less than on a motorcycle, as long as you concentrate. But mopeds are even more dangerous than motorbikes.
 - B Motorcyclists should all start off as cyclists. The more road sense the rider has, the safer they are. Cycling is a very good way of acquiring road sense.
 - C All forms of two-wheeled transport are dangerous, unless riders stick to roads or tracks allocated especially to them. However, even on specially allocated tracks, racing motorcycles at speed has a high element of danger.
 - D Mopeds lack the acceleration that motorcycles have. But although in general this makes them less dangerous, in some situations the lack of acceleration can make their riders even more vulnerable.
 - E All forms of two-wheeled transport are dangerous. The danger can be reduced by careful driving and good road sense. However, no matter how good a rider's road sense, an element of danger will always be there that is not there for car users.
- 19 People who fly frequently may face a serious risk of cancer and so should be screened more regularly. High rates of breast and skin cancer have been detected among the crews of aeroplanes, often 30% higher than average. Frequent flyers are also at a higher risk of developing cancer of the prostate, skin, bowel and brain, as well as leukaemia. This is the result of cosmic radiation, much of which comes from the sun, which floods high-flying aircraft, and it has been found that four hours at 10 000 m is equivalent to undergoing one chest x-ray.

Which one of the following is an expression of the main **conclusion** of the above argument?

- A Four hours at 10 000 m is equivalent to undergoing one chest x-ray.
- B Regular cancer screening should be offered to the crews of aeroplanes.
- C Frequent flying may carry unknown risks to one's health.
- D Aeroplanes are full of cosmic radiation caused by the sun.
- E People who fly frequently should be regularly screened for cancer.

- 20 Brazil nuts are an important source of selenium, a mineral that research suggests is a contributor to the prevention of certain types of cancer. If people do not include brazil nuts in their diet they are failing to take all the steps they could to protect their health. It is irresponsible, therefore, not to eat brazil nuts.

Which of the following identifies the main **flaw** in the above argument?

- A Brazil nuts may contain many calories and may be fattening.
 - B Eating brazil nuts may not be sufficient to prevent cancer.
 - C Eating brazil nuts may not be the only source of selenium.
 - D The research mentioned is not documented sufficiently.
 - E The connection between selenium in the diet and lower rates of cancer may just be coincidental.
- 21 Fred and Bill are elderly brothers. They are unmarried and have no children and each has savings of \$12000 as his only assets. They each decide to make wills. (Note: A 'will' is a legal document that states how a dead person's assets are to be distributed.)

Fred's will leaves half his possessions to Bill, a quarter to the lifeboat association and a quarter to the cats' defence league.

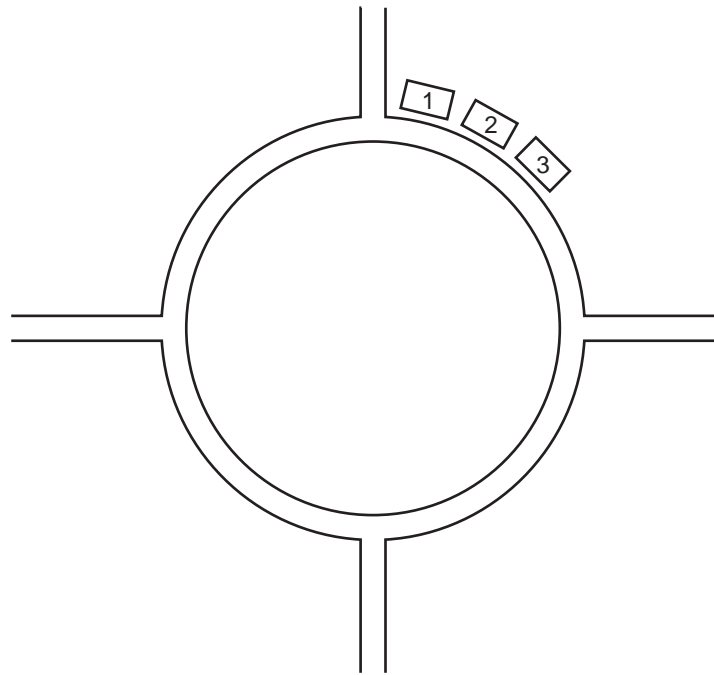
Bill's will leaves half his possessions to Fred, a quarter to cancer research and a quarter to the lifeboat association.

But when the second one dies, his assets will be divided equally between his two chosen charities.

If Bill dies first, how much will the cats' defence league eventually receive?

- A \$3000
- B \$4500
- C \$6000
- D \$7500
- E \$9000

- 22 On a new estate, a number of houses are arranged around a circular park. There are roads leading away from the park as shown below. The houses are evenly spaced and each house takes up the equivalent of one house. The houses are numbered clockwise 1, 2, 3 etc.



House 27 is diametrically opposite house 3. How many houses are around the park?

- A 44
- B 48
- C 50
- D 52
- E 60

Use the following information to answer questions 23, 24 and 25.

Julia is making a business trip to Hong Kong. The company she is visiting will pay for her hotel and food during the working period and up to five nights hotel accommodation. She will be working from Wednesday 3rd March to Friday 5th March and decides to use her extra two nights hotel accommodation at the end of her trip so she will have some time to look around and shop.

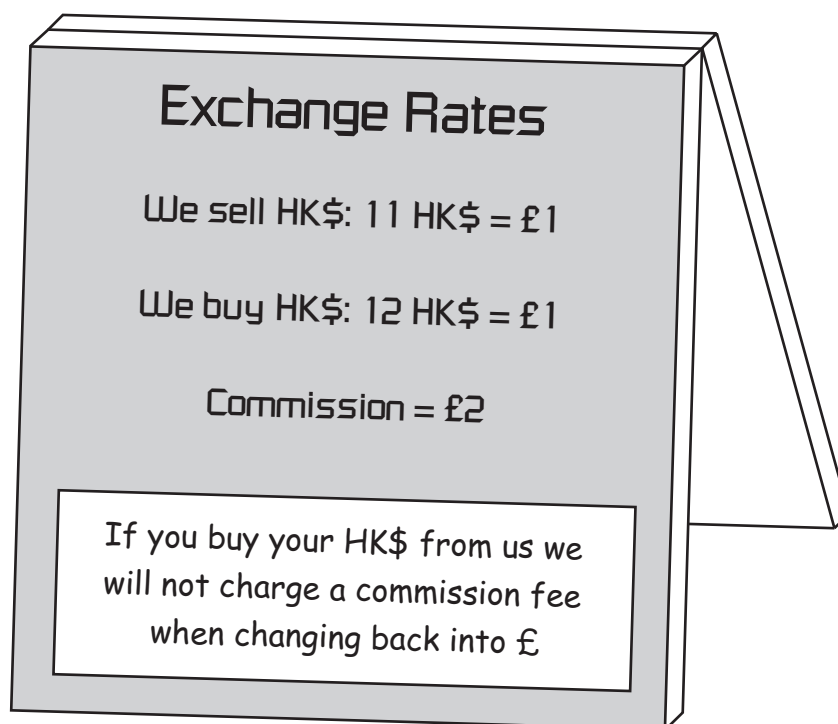
The airline with which she is flying has only one flight in each direction between London Heathrow and Hong Kong each day. The schedule is as follows (all in local time):

Depart Heathrow	9.30 pm	Arrive Hong Kong	5.30 pm
Depart Hong Kong	11.00 pm	Arrive Heathrow	5.00 am

The actual flying time is 12 hours out and 14 hours back, because of prevailing winds. Hong Kong time is 8 hours ahead of UK time (i.e. 9pm in Hong Kong when it is 1pm in London).

She will be given 3000 Hong Kong dollars (HK\$) when she arrives to cover her additional expenses for food, transport, etc while she is in Hong Kong. She decides to change a small amount of money before she leaves so she can pay for taxis and other minor expenditure before she receives her expenses.

Before departure, Julia goes into an Exchange Bureau to buy the nearest amount to £50 in Hong Kong dollars.



- 23 The cost in pounds of buying HK\$ is found by dividing the number of dollars to be bought by the appropriate exchange rate then adding the commission. HK\$ can only be bought in banknotes and coins. The smallest notes have a value of 100 HK\$.

Julia wants to spend as near to £50 as possible, including commission, to buy HK\$. How much does she spend, to the nearest 10p? (100p=£1).

- A £38.30
 - B £45.50
 - C £47.50
 - D £52.00
 - E £56.50
- 24 Julia and her husband John agree that he will call her on her mobile phone each day. He will not call between 10 pm and 8 am London time as he is in bed, and similarly not between 10 pm and 8 am Hong Kong time. She will be working between 9 am and 5 pm, then having dinner with her colleagues until 7 pm so he will not call during these hours. John cannot call while he is at work, between 8.30 am and 12.30 pm and 2 to 6 pm.

During what hours, Hong Kong time, can Julia expect a call from John?

- A 8-9 am
 - B 12.30-2 pm
 - C 7-10 pm
 - D 8.30-10 pm
 - E 10 pm-2 am
- 25 Julia flies out on the last flight which will enable her to make her meeting on the morning of Wednesday 3rd March so she will maximize her leisure time in Hong Kong at the end of her trip. She makes use of her full five nights accommodation.

When will she arrive back at London Heathrow?

- A 5 am Sunday 7th March
- B 5.30 pm Sunday 7th March
- C 5 am Monday 8th March
- D 1 pm Monday 8th March
- E 5 am Tuesday 9th March

- 26 World supplies of oil will start to decline after 2010, unless new reserves are discovered. Economists say we should not worry about oil supplies, because the decline will force up the price of oil, so that it will become economic to extract oil from unusual sites, for example, there are deposits which are 90% rock and 10% oil. But the economists' conclusion is wrong because geologists have looked for such deposits and have failed to find them.

Which of the following best expresses the main **conclusion** of the above argument?

- A Geologists will be unable to discover new reserves of oil.
 - B There are no deposits of oil in addition to known reserves.
 - C The decline in oil supplies after 2010 will force up the price of oil.
 - D Economists are wrong to say that we should not worry about oil supplies.
 - E When oil supplies decline it will be economic to extract it from unusual sites.
- 27 We should not hold actors in higher esteem than writers. While acting is doubtless a considerable skill, it is not creative. In order to make the story come to life, to make it more or less believable, actors bestow upon the words sensitivity and feeling. Yet in so doing they are _____ the script that they have been given. Celebrating the actor above the writer is like celebrating the cameraman above the director.

Which of the following phrases, inserted in the blank space, **most logically completes** the passage / is best illustrated by the analogy in the final sentence?

- A not responsible for
- B making the best of
- C merely responding to and interpreting
- D finding hidden emotional depths within
- E obeying instructions in

- 28 We are all aware that presentation matters enormously in politics and in acting. But most people have assumed that in the normal world of work what matters is how well you do your job, not what you look like. Sadly, it seems this is no longer the case. Bosses - particularly in the service sector - increasingly choose staff for their self-presentation techniques (principally appearance and accent) rather than just for technical skills or experience. A whole "underclass" of people who are not blessed with natural good looks and perhaps have a disliked regional accent will be excluded from the service sector job market.

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

- A Most jobs available involve meeting the general public.
 - B Bosses still need technical skills and experience in their workforce.
 - C Self-presentation skills cannot be learned.
 - D Views on attractiveness and regional accents are consistent among employers.
 - E Politicians and actors are not sincere.
- 29 Wearing glasses makes people look more capable and more self-assured. They also provide a useful tool to public speakers, especially in debates or when responding to difficult questions. Adjusting or wiping glasses can give the speaker a vital extra moment to think, without appearing to lose composure. Opinion polls clearly indicate that the public pays a lot of attention to personal appearance and body language. They are quick to notice when a prominent figure looks hesitant or flustered. Politicians in particular, have a lot to gain from projecting an image of confidence and composure.

Which of the following is a **conclusion** that can be drawn from the above passage?

- A Politicians could have something to gain from wearing glasses.
- B People need their leaders to be capable and self-assured.
- C Politicians who wear glasses are more popular than those who do not.
- D Public speakers who wear glasses have more time to think.
- E Politicians who do not wear glasses often appear to lack composure.

- 30 One of the simplest arguments about the possibility of time travel is that, were it ever invented, we would already know about it! Put simply, if the ability to travel through time were ever accomplished, then we would have met people from a different time who had travelled to ours. But despite a few highly unreliable and controversial claims to that effect, there is no evidence that this has happened. It would therefore seem that each one of us is destined to remain within our given section of the fourth dimension.

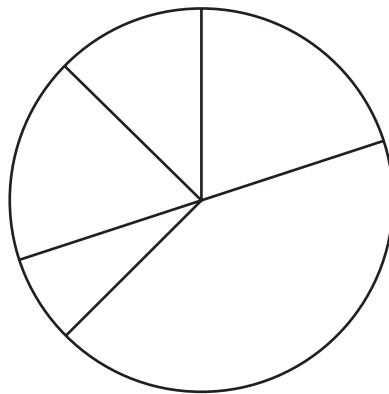
Which of the following is the best statement of the main **conclusion** of the above argument?

- A Probably human beings will never be able to travel through time.
- B If human beings were ever to achieve time travel then we would already be aware of it.
- C Existing evidence of encounters with time-travellers is insufficient.
- D Travellers from a different time may be invisible to inhabitants of the time they visit.
- E Time travel is theoretically possible if people can travel faster than the speed of light.

- 31 A survey was carried out of 200 people in each of 5 towns to determine their voting in the next election. The results are shown below:

Party \ Town	Democrat	Conservative	Centrist	Green	Independence
Acton	70	30	35	15	50
Benfield	80	20	40	25	35
Carrville	85	20	30	30	35
Doling	85	15	35	25	40
Exbridge	75	25	25	30	45

The local newspaper is presenting 5 pie charts to illustrate the results. The graphic artist has just drawn the outline of the first graph, but cannot remember which town it represents. The parties are not necessarily in the same order on the pie chart as they are in the table.



Which **town** does the pie chart represent?

- A Acton
- B Benfield
- C Carrville
- D Doling
- E Exbridge

- 32 A competition to promote a magazine offers a prize to a randomly selected person from two large groups of those who subscribed and whose birthday was on a randomly chosen day.

I subscribed, and my twin is thinking of doing so.

What would happen to my chances of winning if she does? Would they be:

- A nearly doubled?
 - B exactly the same?
 - C just slightly less?
 - D about halved?
 - E zero?
- 33 In an examination 100 students were graded either grade A or grade B in English and Mathematics. 58 were graded A in Mathematics, and 57 were graded A in English. 30 students were graded A in both Mathematics and English.

How many students were graded B in both subjects?

- A 14
 - B 15
 - C 16
 - D 27
 - E 28
- 34 A multinational company has offices in both Sydney in Australia and Anchorage in Alaska. Clocks in Sydney are 10 hrs ahead of GMT (Greenwich Mean Time) and clocks in Anchorage are 9 hrs behind GMT. Both offices are staffed only between 9am and 5pm local time seven days a week.

When the time difference is as given above, for how many hours a day can staff in one office speak directly on the telephone to staff in the other office?

- A 0
- B 1
- C 3
- D 4
- E 5

- 35 A stamp book contains a mixture of 27c second class stamps and 32c first class stamps. The total value of stamps in the book is exactly \$6.00.

How many 27c stamps are there in the book?

- A 5
- B 8
- C 10
- D 12
- E 22

- 36 Recent research suggests that, contrary to popular belief, the firms that are making the most profit are the ones with the least happy workers. Therefore firms that deliberately make their workers unhappy can expect a rise in profits.

Which of the following identifies the main **flaw** in this argument?

- A Unhappy workers are likely to leave their jobs.
- B It assumes workers are unhappy because of their work.
- C It assumes that unhappiness causes a rise in profits.
- D It assumes that there are no other factors than worker attitudes which determine profits.
- E It assumes that customers are displeased when served by discontented staff.

- 37 If I throw a glass at a brick wall with sufficient force, it will break and fall to the ground in pieces. I can predict this outcome with near certainty, because the cause and its almost invariable effect are well known. But nobody can predict with any kind of certainty the number or shape of the fragments into which the glass will break, or explain afterwards why it shattered in the particular way that it did. So whereas the fact that the glass breaks has a clear and obvious cause, the particular way in which it shatters has no cause at all: it is completely random.

Which of the following is the best expression of the **flaw** in the reasoning?

- A Being able to predict something does not mean that I know what caused it to happen.
- B Knowing the cause of something does not mean that it is certain to happen.
- C Being able to predict something if I know its cause, does not mean that if I cannot predict it, it has no cause.
- D Knowing what has always happened in the past does not mean I can predict what will happen in the future.
- E Not being able to explain something does not mean that it cannot happen.

- 38 Recent opinion polls have shown that less than half the population is happy with the health service and the majority fear for its future. But isn't the problem that people just expect a better service of the service? After all, the health service was set up as a public service which was available to all and free at the point of use. To expect from it high standards of individual attention, customer choice or an absence of practices which offend our finer feelings is absurd. Inevitably, expensive, high-quality services can only be enjoyed by those who can afford to pay for them.

Which of the following, if true, most **weakens** the argument in the passage above?

- A Opinion polls taken 20 years ago show higher levels of satisfaction with the health service.
 - B Not everyone who wants to use the private sector can afford to.
 - C People are not prepared to pay higher taxes to fund better standards in the health service.
 - D Public expectations of the health service keep rising.
 - E The private sector always offers high quality services.
- 39 Since 2003, there have been mass deaths of seabirds living on and around the North Sea leading to a decline in the overall bird population. Scientists suggest this is because the cold-water fish species these birds have traditionally fed on, such as cod, have declined in numbers. This decline is, in turn, due to the migration to colder Arctic waters of the plankton that such fish have traditionally fed on, due to the warming of the North Sea. This warming effect has meant that warm-water species of fish such as pilchards and red mullet are becoming increasingly common in the North Sea.

Which of the following is a statement of the **conclusion** that can be drawn from the above passage?

- A Birds in the North Sea do not like eating warm-water species of fish.
 - B The increase in warm-water fish species will reverse the decline of bird numbers.
 - C Warm-water species are not found in the same quantities as cold-water species were.
 - D Birds in the North Sea can only exist on a diet of cold-water fish.
 - E The increase in warm-water fish has failed to stop the decline in bird numbers.
- 40 To feed the growing population in Africa, individual farmers will have to catch more rain. Water consumed growing food crops is likely to rise from 7000 to 12600 cubic kilometres per year by 2050. Most rivers in farming regions are running dry and good dam sites are running out. Underground water levels are sinking. So irrigation cannot provide enough extra water.

Which of the following will most **strengthen** the above argument?

- A Underground lakes are fed by rainwater.
- B Extra dams could supply only an extra 800 cubic kilometres of water.
- C The only way to prevent famine is to collect the water from Africa's rivers.
- D A million women have bought simple treadle pumps that tap rainwater in the surface soils.
- E More than 90% of the fresh water people consume is used to grow food.

41 The following table appeared in the 'Whizard's Guide to the Internet':

**Top Four Quickest Internet Service Providers' Download Times
in minutes and seconds for 3MB**

Subscription			Pay as you go		
Uno.com	**	11m 8s	Yksi.com	*****	11m 35s
Dos.co.uk	*****	11m 20s	Kaksi	*****	11m 41s
Tres.com	*****	11m 28s	Kolme.net	*****	11m 43s
Quatro.net	*****	11m 42s	Nelja.com	*****	12m 10s

"I know little about the Internet – I can't tell 3MB from MP3 – but I do think this table gives a false impression of the differences between suppliers and types of service."

Which of the following do these star bar charts **not** distort?

- A The differences between download times.
- B The comparative total times for different companies within each category.
- C Whether the third company in one category does better than the third company in the other category.
- D Subscription versus Pay as you go.
- E The order in terms of speed within each category.

- 42 There were 5 competitors in the school's Victor Ludorum competition to select the winner. Competitors competed in up to 5 events. The scoring was 5 points for the winner down to 1 point for the 5th place. Anyone not competing in an event scored no points. At the end of the competition, a contestant's worst event was ignored and the sum of the points for the best 4 events calculated. The winner was the highest scorer.

The table below shows the **finishing places** in the five events:

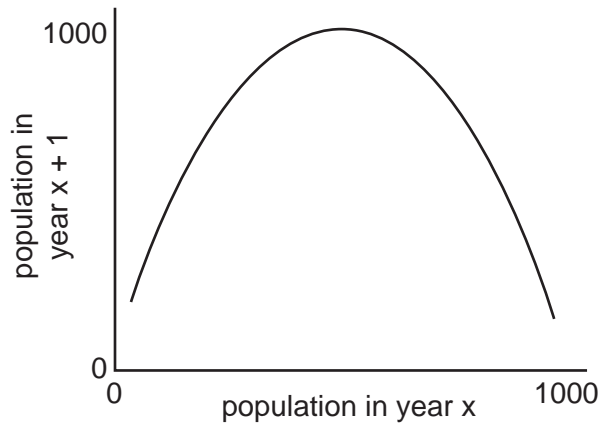
	High jump	100m	1500m	Discus	Long jump
Chang	4	5	2	1	4
Costa	5	3	1	5	3
Deschamps	2	1	DNF	3	1
Khan	1	4	4	2	2
Smith	3	2	3	4	DNS

(DNF = did not finish, DNS = did not start due to injury)

Who won?

- A Chang
- B Costa
- C Deschamps
- D Khan
- E Smith

- 43 The graph below has been drawn from years of annual surveys of the population of the Bolandian plain. It shows the average relationship between the populations in two successive years.



Which of the following would be consistent with the shape of the curve above?

- A Births are high if there are a lot of food/space resources and low if there are insufficient.
 - B Births and deaths normally just balance each other.
 - C Pups are born 6 months after mating.
 - D The population increases due to mating and birth but is limited by food resources.
 - E Animals mate in the spring and most deaths occur in the winter.
- 44 A bus company needs to have 13 buses operating every day of the week. Cleaning and servicing requirements mean that each bus is not available for operating services two days per week.

What is the smallest number of buses the company must have to ensure that 13 buses can be available every day?

- A 17
- B 18
- C 19
- D 20
- E 21

- 45 Clothes hanging on racks at the entrance to shops are often arranged with the hangers in alternate directions to stop a thief from grabbing the whole set and running out of the door.

Shoppers take garments one at a time, and either buy them or put them back, but not necessarily in the same place, and without worrying about which way the hanger goes.

A rack was set out yesterday morning:



At the end of the day the hangers were in the following order:



What is the **smallest** possible number of garments that were taken off **and** put back?

- A 2
- B 4
- C 5
- D 6
- E 8

