

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

THINKING SKILLS

8436/01

Paper 1 Multiple Choice

November 2005

2 hours

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

READ THESE INSTRUCTIONS FIRST

Write in a soft pencil.

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

Write your name, Centre number and Candidate number on the Answer Sheet in the spaces provided unless this has been done for you.

There are **fifty** questions on this paper. Answer **all** questions. For each question there are five possible answers **A, B, C, D** or **E**.

Choose the **one** you consider correct and record your choice in **soft pencil** on the separate Answer Sheet.

Read the instructions on the Answer Sheet very carefully.

Each correct answer will score one mark. A mark will not be deducted for a wrong answer.
Any rough working should be done in this booklet.

This document consists of **25** printed pages and **3** blank pages.



- 1 Next month two men are about to lose their jobs. Mr Ng, 64, steps down as chairman of the company. He will receive a 'retirement' payoff of \$2 million, and a pension of \$500,000 per year. He has been chairman for four years and presided over one of the worst corporate failures in recent times. Mr Gee is 54. Along with hundreds of other workers he is being made redundant through no fault of his own and is unlikely to work again. After 27 years' service he will receive a single payment of \$12,000, and a pension of about \$100 per week. There can be no justice in a society that rewards one person so much more highly than another. In a just society the situation would be reversed.

Which of the following identifies a **flaw** in the reasoning?

- A Mr Ng's retirement terms were agreed by the shareholders when he took over as chairman.
 - B Mr Gee's redundancy payment and pension were based on his final salary, which was a fraction of the chairman's salary.
 - C It is no more just to favour one employee with an exorbitant payoff than it is to favour another.
 - D If Mr Ng's payoff were shared between all the redundant workers, it would make only a small difference to their pensions.
 - E The company's failure may have been the result of economic factors beyond anyone's control.
- 2 Hypochondriacs are people with an abnormal anxiety about their health. They think that every symptom of illness, however trivial, is evidence that they have a serious or fatal disease. Over the past few years, a large amount of information relating to disease has appeared on the Internet. The availability of this information, far from being reassuring, is very bad for hypochondriacs, because they are able to spend so much time researching potential illnesses, thus making themselves more and more anxious. Moreover, much of the information is inaccurate. Hypochondriacs should ignore the Internet, and instead seek medical advice and reassurance from their own doctors.

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

- A Hypochondriacs often mistrust what doctors tell them.
- B Doctors are too busy to deal with the problems of hypochondriacs.
- C The incidence of hypochondria has not increased over the past few years.
- D Hypochondriacs can be referred by doctors for effective treatment for anxiety.
- E Hypochondriacs are not the only people who use the Internet for information about illness.

- 3 Fluoride can be added to the water supply in order to reduce tooth decay in the population. But it should not be used in this way to prevent tooth decay, because no one should have medication forced upon them. Moreover, fluoride has side effects; it can affect the immune system and can cause diabetes. Those who drink a lot of water would have a very high dosage of fluoride. It is not unfluoridated water which causes tooth decay, it is sugar. We should deal with the cause of the problem, and reduce our intake of sugar, instead of forcing people to use a medication which will put their health at risk.

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

- A It is wrong to force anyone to take a medication.
 - B Drinking fluoridated water puts our health at risk.
 - C In order to avoid tooth decay we should reduce our intake of sugar.
 - D Fluoride should not be added to the water supply to prevent tooth decay.
 - E People who drink a lot of water would suffer illness if water were fluoridated.
- 4 News bulletins of a set length are broadcast on TV and radio every day, usually in time slots of 30 minutes or one hour. This means that on a day when nothing much happens, relatively unimportant matters make the news that would not even be mentioned on a busy news day. On the other hand, an important item of international news, such as an earthquake or military conflict, may receive no coverage on a day when there is a big, dramatic story close to home. Or it may have to be so severely shortened as to make it seem trivial and unimportant, which is just as bad.

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

- A People should be encouraged to watch the news and take more notice of the world around them.
- B Most people are more concerned with events in their own country rather than what happens abroad.
- C TV is a better medium than radio or newspapers for conveying important news.
- D News programmes have more to do with entertainment than information.
- E News bulletins should vary in length according to how important the events are that happen that day.

- 5 If we are to reduce the amount of harmful air pollution people are exposed to, the private use of motor vehicles in urban areas needs to be discouraged. The only effective way to achieve this is to charge drivers to enter city centres at peak times. Banning cars altogether would be too unpopular and there are no other ways of reducing the amount of traffic significantly. If charging were to work, of course, cheap public transport would need to be readily available for all people to use in urban areas as a desirable alternative to the car.

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

- A Most of the air pollution caused by traffic in urban areas derives from the private use of motor vehicles.
 - B Cost is a major factor influencing the type of transport people use in urban areas.
 - C Public transport is currently often very expensive and unreliable.
 - D People care more about their cars than they do about the potential health problems caused by air pollution.
 - E People are influenced by convenience in deciding whether or not to use their cars in urban areas.
- 6 A school is arranging a trip to the zoo for a class. A teacher and a classroom assistant will travel with them but some extra adults will be needed, so parents will be asked to volunteer. The safety rules for trips state:

“There must be at least one adult for each 6 children aged seven or over, at least one adult for each 4 children under the age of seven, plus two extra adults to cope with any emergencies.”

The class has a mix of ages; there are 12 children 6 years old and 16 children 7 years old.

At least how many parents are needed to travel with the class?

- A 4
- B 5
- C 6
- D 7
- E 8

7 Two friends encode the text messages they send to each other on their mobile phones so that no one else can read them. The encoding system, used for each letter in turn of the message, is as follows:

1. Replace each letter by its equivalent with the alphabet reversed; so A becomes Z, B becomes Y, C becomes X, etc.
2. Replace each letter resulting from operation 1 by a two digit number according to its place in the alphabet; so A becomes 01, B becomes 02, etc.

What is the coded form of the word FOLIO?

- A 1218151221
- B 1221518121
- C 2112151812
- D 2118152112
- E 2181512112

8 In the sport of Slingball, there are three ways to score points:

tuck	1 point
scoop	3 points
crown	8 points

Yesterday the Blues played the Reds.

The Blues scored 3 crowns, 7 scoops and 12 tucks, whilst the Reds scored only 1 crown, but 16 tucks and 10 scoops.

Who won yesterday's match and by how many points?

- A The Blues by 1 point.
- B The Blues by 3 points.
- C The Reds by 5 points.
- D The Reds by 9 points.
- E The Blues by 9 points.

- 9 A quarterly telephone bill is made up of £15 standing charge plus 4p per minute of National calls plus 0.8p per minute of Local calls.

Mary had a total of 3 hours of National calls and 10 hours 20 minutes of Local calls last quarter. How much will her bill be?

- A £12.16
- B £21.40
- C £27.16
- D £41.24
- E £47.00

- 10 All classified advertisements in the magazine Sellitt are displayed in rectangular boxes, and each advertisement is charged according to the following formula:

\$3 per square centimetre of area (including a maximum of 20 words regardless of box size) plus 50 cents per word for each extra word.

I have a 28 word advertisement which I would like displayed in a 6 cm by 4 cm box.

How much will it cost to place my advertisement in Sellitt?

- A \$64
- B \$68
- C \$74
- D \$76
- E \$86

- 11 One argument against the existence of intelligent life forms on other planets is that if they did exist, then at least one of them would have developed the required level of technology to reach us by now. As there is no evidence that aliens have reached the earth, there cannot be intelligent life elsewhere in the universe.

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

- A Developing the technology to travel between star systems is very difficult.
- B Intelligent life must take a long time to develop.
- C If aliens visited earth, they would be unable to communicate with us.
- D If alien species existed, they would want to explore space.
- E Interplanetary travel is too dangerous for any form of life.

- 12 Some people claim that computers could soon possess an intelligence superior to that of humans, because computers could soon be produced which have more bytes than the number of neurons (i.e. nerve cells) in the human brain. However, new research has shown that it isn't just the absolute number of neurons which is important, but also the number of connections between them. Because of the huge number of these connections, the total capacity of human memory, which is crucial to intelligence, is much greater than previously thought, and many times greater than the memory capacity of the most powerful computer ever made. Thus it is unlikely that computers will become more intelligent than humans.

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

- A Memory is only one aspect of human intelligence.
 - B Human memory deteriorates as individuals grow older.
 - C Some previous predictions about the power of computers have turned out to be wrong.
 - D The memory searches that computers make are more systematic than those of human memory.
 - E The new research enables the design of computers with connections which are similar to those in the brain.
- 13 Cycle lanes, which are painted on the road, are at best useless and at worst more dangerous to cyclists than no lanes at all. The reason for having bicycle lanes on busy roads is to protect cyclists from injury by passing cars. For this objective to be met, there has to be a raised kerb or physical barrier that separates the cyclist from the main road, to prevent drivers from straying into the cycle lane, or blocking it with their parked vehicles. Painted lines don't prevent either of these abuses by drivers: all they do is give cyclists a false sense of security, which may make them less vigilant.

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

- A Painted cycle lanes give cyclists a false sense of security and make them less vigilant.
- B Cycle lanes do not protect cyclists from injury by passing cars unless they are separated from the main road.
- C Painted cycle lanes are useless, and may even increase the danger to cyclists.
- D Drivers have to be prevented from straying into cycle lanes or parking their cars on them.
- E Only by placing a kerb or barrier between cycles lanes and the main road can cyclists' safety be assured.

- 14 Official crime statistics are produced by the government based on crimes that are reported to and recorded by the police. They reveal interesting trends such as that women appear to commit far fewer crimes than men. However, many crimes are never reported to the police, perhaps because the victims consider the offences to be too minor, or they are too embarrassed or frightened to inform the authorities. Similarly, some crimes that are reported may not have happened; for example, false allegations of theft may be made by people seeking to make bogus insurance claims. It is also the case that the police may deal more leniently with certain types of offenders, such as the elderly, women and people from middle class backgrounds.

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

- A Women actually commit more crimes than the official statistics suggest.
 - B The police should be doing more to encourage people to report crimes.
 - C The number of crimes that go unreported each year is higher than those that are reported.
 - D Official statistics provide an unreliable measure of the amount of crime in a society.
 - E Certain types of crime are more likely to be recorded in the official crime statistics.
- 15 Su Lin, though only 29, is unusually well qualified and is one of our most valued Team Leaders. We can't afford to lose her to a competitor. However it is company policy that staff considered for the step up to Section Leader should be 34 or over. The rule has never been broken, and there is no good reason to break it now. The high level of maturity and experience needed for a senior management post are very rare in someone under 30. Older staff who would have to take instructions from such a young woman would probably resent it. And, finally, Su Lin has a long career ahead of her, and a few more years at her present level will do her no harm.

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

- A Su Lin's exceptional qualifications make it likely that another company will offer her a senior management job.
- B No matter how good someone's qualifications may be there are certain management qualities that come only with age.
- C Many other companies operate a similar age-restriction on applicants for senior management posts.
- D Five years is a long time for someone impatient to get to the top.
- E Su Lin is popular with her colleagues and has a quiet, unassuming personality.

- 16** The Bordham Amateur Dramatic Society regularly stages productions at the Village Hall, which can seat a maximum of 300 people. They will give five performances altogether of their latest production, beginning tomorrow night.

Frank always looks after the printing and selling of programmes. The day before a production opens he uses the following method of computation to decide how many programmes to print altogether:

“Multiply the total number of tickets already sold by 3.
Add to this the total number of tickets currently unsold.
Then divide the answer by 4, rounding up to the next multiple of ten.”

So far 1172 tickets have been sold for this week’s production. How many programmes will Frank print?

- A** 800
 - B** 880
 - C** 970
 - D** 1130
 - E** 1210
- 17** Virender is constructing a garden pond. He has dug the necessary hole and is now ready to line the base and sides with a layer of sand.

His gardening book gives the following instructions to calculate how many kilograms of sand are needed:

Step 1 : Add twice the maximum depth to the length of the hole.
Step 2 : Add twice the maximum depth to the width of the hole.
Step 3 : Multiply together the answers to steps 1 and 2.
Step 4 : Multiply the answer to step 3 by 30.

The hole is 3.5 metres long and 2 metres wide, with a maximum depth of 0.5 metres.

How much sand does Virender need?

- A** 225 kilograms
- B** 270 kilograms
- C** 300 kilograms
- D** 315 kilograms
- E** 405 kilograms

- 18** 160 boxes of copier paper have been delivered to the office block in which I work. I have been instructed to move them all from the ground floor to the storeroom on the 9th floor.

Each box weighs 12.5 kilograms, and I weigh 83 kilograms. The lift has a load limit of 400 kilograms.

There is nobody available to help me, and I do not intend to use the stairs at all.

Assuming that I have the lift to myself throughout, how many trips up to the 9th floor will I have to make?

- A** 5
 - B** 6
 - C** 7
 - D** 8
 - E** 9
- 19** In a survey carried out on a group of 11 to 18 year-olds it was reported that 80% owned a personal stereo and 50% owned a bicycle.

Which of the following hypotheses can be confirmed from the information given?

- A** Half of those having a personal stereo also had a bicycle.
 - B** All those surveyed had either a personal stereo or a bicycle.
 - C** Half of those who had a bicycle did not have a personal stereo.
 - D** 1 in 5 of those surveyed had neither.
 - E** At least 30% had both a bicycle and a personal stereo.
- 20** The annual membership subscription for Ironwood Golf Club is due every January 1st. This year the rates have been set at \$108 for full members and \$63 for student members.

New members who join the Club between April and December pay a reduced subscription for what remains of the year, calculated according to the following formula:

One tenth of the annual subscription multiplied by one more than the number of complete months left.

How much will a student who joins the club during July be required to pay?

- A** \$31.60
- B** \$37.80
- C** \$44.10
- D** \$54.10
- E** \$64.80

- 21 There has been concern in the U.S. about a rising number of cases of a disease called monkey pox. It has been suggested that it is a significant threat to public health as it causes fatalities in 10% of cases in African countries. However there is no reason why people should be especially concerned. People in African countries often live a long way from medical centres and therefore treatment of the disease is delayed. The 10% of people with the disease who died would have had a considerably increased chance of recovery had they been treated earlier. The disease is no different to many illnesses endemic in advanced industrial countries like the U.S. which would be a serious threat to public health if they were not treated early enough.

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

- A Prompt treatment of the disease in the U.S. is dependent on one's ability to pay.
 - B There are a number of conditions which are fatal no matter how prompt the treatment.
 - C Most people who die of monkey pox are elderly and infirm.
 - D Medical facilities in African countries are less developed than in the U.S..
 - E There is no known way of vaccinating people against monkey pox.
- 22 For many years, wine experts have assumed that the best way to seal a bottle of wine is with the traditional cork (i.e. made from the bark of the cork oak) Though some cheap wines have screw-tops they are considered inappropriate to a good wine and best used for lemonade and other soft drinks in the view of traditional wine connoisseurs. However a recent test found that cheap wines that had screw tops had kept far better than equivalent wines with traditional corks. So this shows that the screw top is a better method of sealing a wine than the traditional cork whatever the experts think.

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

- A The sound of a cork being pulled out is part of the pleasure of wine drinking.
- B Some corks are now made out of plastic rather than the traditional material.
- C The wines used in the test were less than five years old.
- D Corks vary in quality and the best are kept for expensive wines.
- E The supply of raw material to make traditional corks is declining rapidly.

- 23 Education has traditionally involved the learning of academic subjects such as history and geography. However, learning a subject largely involves the acquisition of a body of knowledge. The pace of change in the modern world means that such knowledge quickly becomes redundant. Unless one continues to study the subject and keeps up with developments in it, any knowledge gained will quickly become irrelevant or incorrect. Only a small minority of people do keep up with subjects in this way and even then only in one or two subjects.

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

- A Skills-based education would have a much longer lasting relevance for most people.
 - B Many people find that much of their education becomes irrelevant as they get older.
 - C Academic subjects do not involve any skills.
 - D There is no point in studying academic subjects.
 - E Education necessarily involves the learning of academic subjects.
- 24 Speed limits on freeways were devised forty years ago, and since that time car design has vastly improved. Modern cars have braking systems which guarantee that they can come to a halt in much shorter distances than could cars built in the 1960s. They also have power-assisted steering, which makes it easier for drivers to control the car. Freeways are the easiest roads on which to drive, because they have no traffic lights or difficult junctions, and there are no pedestrians or cyclists who could be harmed. So it is clear that no harm would be done if the speed limit on freeways were increased by 10 miles per hour.

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

- A Only 6% of the total number of road deaths occur on freeways.
 - B Not all drivers want to drive faster than the present speed limits.
 - C In the 1960s many drivers had little experience of driving on freeways.
 - D The anti-lock brakes on a modern car ensure that the car can stop without skidding.
 - E Whenever speed limits on freeways have been reduced, accident rates have fallen.
- 25 The Atkins diet has become very popular in recent years in a number of countries. It involves eating food high in protein and avoiding carbohydrate. It is a controversial method of losing weight and some critics have suggested the death of the founder of the diet at a relatively young age of 72 suggests it is not very good for you. Although Dr Atkins used his own diet, his death was the result of complications following an accidental fall. Therefore his death has no relevance to the question of whether the diet is good or bad for peoples' well-being and health

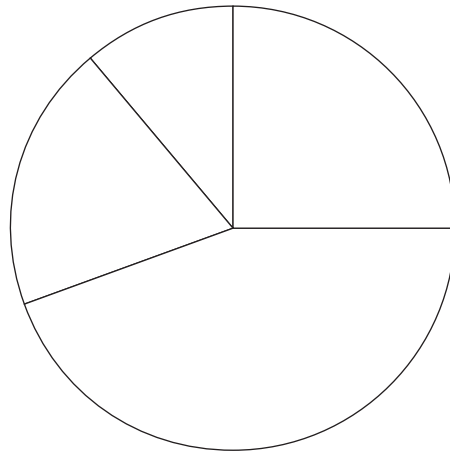
Which of the following, if true, would most **weaken** the above argument?

- A Medical research suggests high protein diets can result in bouts of dizziness.
- B By eliminating carbohydrate, the Atkins diet deprives people of an important nutrient.
- C Weight loss in people following the diet has been very dramatic.
- D Professor Atkins had a heart attack a year before his death.
- E The weight loss resulting from the Atkins diet is too rapid to be sustainable.

- 26 150 people who completed a Customer Satisfaction Questionnaire rated the overall service of Gopher Travel Agency as follows:

Excellent	27
Very good	48
Good	42
Satisfactory	21
Poor	12

Phileas entered this information into his computer in order to construct a pie chart. Unfortunately he failed to enter one of the categories, and as a result this pie chart appeared on his screen:



Which category had Phileas not entered?

- A Excellent
- B Very good
- C Good
- D Satisfactory
- E Poor

- 27 I have booked the function room at the Superior Hotel from 8 pm to midnight next Saturday for a party. The hire charge (including food) has been quoted as:

\$40 plus \$12 per hour plus \$8 per person.

I have asked the hotel to cater for 60 people.

How much does the booking cost?

- A \$568
 - B \$616
 - C \$688
 - D \$792
 - E \$896
- 28 Karen is sharing sweets out between herself and her four friends. She stands everyone in a circle and starts by giving 1 sweet to the person on her right, two to the next around and three to the next. She then starts again with 1 to the fourth person and continues working around the circle 1,2,3,1,2,3 until she has run out of sweets. She had 36 sweets in total.

How many did she get herself?

- A 3
- B 5
- C 6
- D 7
- E 9

- 29 At a quiz night, the scoring system is as follows: 3 points for a correct answer, -1 point for an incorrect answer and 0 points for no answer. After 5 questions, the team scores are as follows:

The Artful Artists	12
The Brain Busters	8
The Crafty Cockneys	10
The Demon Divas	6
The Enigmatic Engineers	7

One team had had 2 points deducted for being caught in possession of a switched-on mobile phone. Which team was it?

- A The Artful Artists
 - B The Brain Busters
 - C The Crafty Cockneys
 - D The Demon Divas
 - E The Enigmatic Engineers
- 30 Jane has a dog called Pilot. Jane feeds Pilot with Wagalot Meaty Chunks, which is only available in 500g cans, and Happidog Biscuit Mixer, which comes in 6 kg bags.

Pilot eats $1\frac{1}{2}$ cans of Wagalot and 250 g of Happidog every day.

Whenever Jane buys a bag of Happidog, she buys as many cans of Wagalot as she needs to last the same length of time.

How many cans of Wagalot does Jane buy when she buys a bag of Happidog?

- A 8
- B 12
- C 16
- D 24
- E 36

- 31 Racism within the city's police force has recently attracted a lot of attention, following a report detailing racist remarks by some officers. Racism is not only morally unacceptable, it is also damaging to police effectiveness, because crime detection depends heavily on the support and cooperation of all the local communities, black, white and Asian. It is therefore a matter of urgency that many more police officers are recruited from among ethnic minorities.

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

- A Attempts to attract recruits from ethnic minorities into the police have been disappointing.
 - B Members of minority groups who join the police force often face hostility from their fellow officers.
 - C Many officers are genuinely shocked and ashamed by reports on police racism.
 - D Racists would be less likely to join a police force that was much more multi-racial.
 - E Racial tensions are fuelled by poverty, which also encourages crime.
- 32 With only skeletons to work from, we rely on artists' impressions of how dinosaurs looked 'in the flesh'. Lawrence Witmer recently caused a stir when he said that artists have generally put the nostrils of dinosaurs too high on the head. He spent months studying the relative positions of noses and nostrils in modern animals. He wanted to see if there is a correlation – whether the bone of the nose reveals the location of the fleshy nostril. He found that there is such a correlation.

Witmer then examined fossils and concluded that in modern reconstructions of dinosaur heads the nostrils had always been misplaced. They should be shown low on the nose, near the mouth. Nostrils in that position would heighten the animal's ability to nuzzle potential food and decide whether it was edible.

According to the passage, Witmer **bases his hypothesis** on which of the following pieces of evidence?

- A The fact that modern animals use their nostrils to decide whether or not potential food is edible.
- B The correlation between the positions of the noses in modern animals and in dinosaurs.
- C The tendency of artists to base their impressions of dinosaurs on the appearance of modern animals.
- D The similarity between the skeletons of modern animals and those of dinosaurs.
- E The correlation between the bones of the nose and the position of the nostrils in modern animals.

- 33 Medical researchers have been exploring the use of magnets to cure depression. Depressed people have a low level of left-side frontal brain activity. When magnets are placed on the appropriate area of the head, such activity increases and the depression is lifted. So this is a welcome development in the treatment of depression. Some would argue that this merely treats the symptom not the cause. However, even if this is the case, it still succeeds in getting rid of the depression in the same way as pain-killers get rid of pain. We would not say that pain-killers were unsuccessful on the grounds that they do not tackle the underlying cause of pain.

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

- A We cannot say that the use of magnets is unsuccessful on the grounds that it only treats a symptom.
 - B We do not know whether low left-side brain activity is the cause or an effect of depression.
 - C Depressed people have a low level of left-side frontal brain activity.
 - D The use of magnets is a welcome development in the treatment of depression.
 - E Alleviating symptoms is more important than finding the underlying causes of disease.
- 34 At the turn of the millennium the boxer Muhammad Ali was named 'sportsperson of the century' by media and opinion polls across the world. Without doubt, Ali was one of the most formidable and charismatic competitors ever to grace a boxing arena. But Ali is revered even in places where boxing ranks below synchronised swimming as a popular pastime. And that is because Ali was a fighter outside as well as inside the ring. He was one of the boldest voices against racism in the US and worldwide; and he risked his career and his freedom to take a stand against the war in Vietnam.

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

- A Ali was the most politically outspoken sportsperson of the 20th century.
- B If the sportsperson of the century had been chosen for sporting achievement alone, it would not have been Muhammad Ali.
- C Ali made boxing a popular sport even in places where it had had very low ranking.
- D Taking all sports into account Ali was not the most outstanding performer of the 20th century.
- E Ali's popularity would not have been as widespread if he had been known only for his boxing.

- 35 Brazil nuts are an important source of selenium, a mineral that research suggests is a major 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.
- 36 Sue is refurbishing her home. She has obtained estimates of how long it will take local trades-people to complete the necessary work:

Plastering	5 days
Fitting new kitchen	3 days
Joinery	8 days
Plumbing	10 days
Tiling bathroom	3 days
Decorating	6 days

The plastering work must be completed before any other work apart from fitting the kitchen can start. Due to prior commitments the joiner cannot start work until the tenth day of the project and the decorators cannot begin their work until all of the other work has been completed. The plumbing can be undertaken any time after the plastering has been done. However, the bathroom cannot be tiled until the plumbing has been completed.

Which of the following is an accurate calculation of the shortest time it would take to complete the refurbishment based on the estimates Sue has obtained?

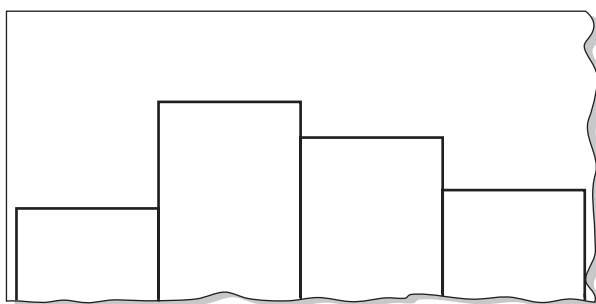
- A 21 days
- B 24 days
- C 27 days
- D 29 days
- E 35 days

37 Ernest has just celebrated the third anniversary of starting his second-hand car business.

This is his monthly summary of cars sold during this time:

	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Year 1	88	97	108	127	101	117	100	132	124	108	115	98
Year 2	106	109	112	144	128	116	121	125	87	119	110	87
Year 3	108	102	134	116	98	119	126	91	123	107	99	104

He constructed a bar chart for each of the years, but tore up his first attempt because he was not happy with the annotation.



Which period is shown on this fragment?

- A November to February Year 1.
- B July to October Year 2.
- C January to April Year 2.
- D June to September Year 3.
- E December to March Year 3.

38 The five local supermarkets and shops all have different offers on my usual brand of toothpaste:

Supermarket	Offer
Allo:	Always low prices, no offers: 69p for 100ml
Buyright:	20% extra for the normal regular size price: 96p for 120ml
Cashco:	3 for the price of 2: Single 100ml tube is 96p
Drapers:	Buy one, get the second half price: Single 100ml tube is 96p
Everyway:	Buy one get one free: Single 100 ml tube is £1.32p.

If I am prepared to buy more than one tube, from where should I buy the toothpaste to get the best value for money?

- A Allo
- B Buyright
- C Cashco
- D Drapers
- E Everyway

- 39 In a survey, 100 British people were asked which foreign countries they visited on holiday last year. Among the 74 who said that they had travelled abroad, the most visited countries were as follows:

Spain	37
Portugal	21
Greece	10
France	9
USA	7
Tunisia	5

Which of the following hypotheses can be **confirmed** from the information given?

- A Some of those surveyed refused to answer the question.
- B Some of those surveyed had no holiday at all last year.
- C Some of those surveyed visited more than one foreign country last year.
- D Some of those surveyed had more than one holiday abroad last year.
- E Half of those surveyed visited Spain last year.
- 40 The Requin Loan Company charges a flat-rate monthly interest on money borrowed. Interest is added to outstanding balances on the first day of every month as follows:

outstanding balance on first of the month	interest
less than \$500	\$10
\$500 or more	\$20

I took out a loan for \$750 from Requin on May 9th this year. Interest has been added since June 1st and I have been repaying \$50 on the 9th of every month since June 9th.

How much will I still owe immediately after my monthly repayment on May 9th next year?

- A \$330
- B \$360
- C \$390
- D \$400
- E \$410

- 41 If you have a quarrel with someone, it is advisable to make peace with them as soon as possible afterwards, and forget all about it. Dwelling on highly emotional experiences, such as quarrels, is very stressful and can lead to high blood pressure. In fact, having a quarrel and continuing to worry about it for a period of time afterwards can be worse for your heart than running a marathon. In addition, a lot of time and mental energy can be wasted worrying about an unresolved quarrel, and yet it is often difficult to forget about it while it still hangs in the air.

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

- A Some people avoid quarrels at all costs.
 - B A quarrel can be worse for your heart than running a marathon.
 - C You should make peace immediately after a quarrel.
 - D A lot of time and mental energy can be wasted worrying about a quarrel.
 - E Dwelling on emotional experiences can be very stressful.
- 42 Concern has been expressed about the number of doctors per head of the population in the U.K. This is considerably lower than in other European countries. Critics suggest that this means that the health of people in the U.K. is suffering in comparison with the health of people in countries where the patient/doctor ratio is more favourable. However such concern is misplaced. U.K. life expectancy figures compare favourably with these other countries. For example, average life expectancy in Belgium is 71 compared with 72 in the U.K. However, Belgium has 400 doctors per 100,000 of the population compared to 160 per 100,000 in the U.K. This shows that people in the U.K. enjoy the same standard of health as people in Belgium, in spite of the lower number of doctors per head.

Which of the following best expresses the **flaw** in the above argument?

- A The author fails to consider the question of access to health care (e.g. financial).
- B The author fails to establish a causal link between health care and doctor numbers.
- C The author assumes professional health care is the only determinant of good health.
- D The author assumes doctor numbers have no relevance to quality of health care.
- E The author assumes people who live to the same age enjoy the same degree of health.

- 43 Statements about the future are not all of the same kind. Some are predictions; some are statements of intent. The difference is that a prediction simply says what is going to happen, whereas a statement of intent says what the speaker plans to do or make happen. Therefore when Paola announced she was going to compete in the Sydney Marathon, she was obviously just stating her intention, but when she said she was going to win, that could only have been a prediction. No statement can be both.

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

- A When meteorologists state that there will be strong winds the next day, it doesn't mean they intend the winds to be strong.
 - B Some claims about the future are neither predictions nor statements of intent.
 - C Paola could not possibly have known whether she would win the marathon or not.
 - D When Paola predicted that she would win, she was also determined to make it happen.
 - E The difference between a prediction and an intention is just in the mind of the speaker.
- 44 The new BMW 5 Series car is not only larger, it also contains more weight-contributing features. Yet it's lighter. However, this is not the contradiction it may seem. It has been achieved by bonding steel to aluminium (under normal circumstances you can't) to construct a revolutionary hybrid bodywork structure. Engineering aluminium suspension, brake callipers, bonnet and wing-panels and gearbox casing account for the rest of the weight-loss.

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

- A One material (aluminium) is significantly lighter than the other material (steel).
- B Other car manufacturers cannot bond steel to aluminium.
- C Cars cannot be built entirely of aluminium.
- D BMW cars were made entirely of steel in the past.
- E The BMW 5 Series is lighter than other cars on the market.

- 45 Antioxidants are beneficial to health, because their presence in the blood stream counteracts the adverse effects of eating fatty foods. Chocolate contains antioxidants, and dark chocolate contains twice as much as does milk chocolate. In recent research, individuals in one group of volunteers each ate 100 grams of dark chocolate, in another group they ate 200 grams of milk chocolate, and in a third group they ate 100 grams of dark chocolate and also drank a glass of milk. The level of antioxidants in the blood of all participants was measured before and after consuming the chocolate. Levels of antioxidants had risen by 18 per cent in those in the first group, but had not risen in those in the other two groups.

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

- A Consuming milk chocolate is bad for one's health.
 - B The more dark chocolate one eats, the healthier one will be.
 - C Consuming milk may prevent antioxidants in chocolate from entering the blood stream.
 - D To ensure good health, people should reduce the amount of milk they consume.
 - E The beneficial effects of eating dark chocolate may be counteracted by the fat which chocolate contains.
- 46 Most countries have some form of inheritance tax. In calculating this tax, some countries have a system which takes account of the number of direct relatives who will inherit, others do not. Martha has dual citizenship of North Bolandia and South Bolandia, both of which use the same currency. She intends to leave her estate worth \$800,000 to her 4 children and wants to lose as little as possible in tax.

How much tax would her estate **save** if she resided in South Bolandia?

Bolandian Inheritance Tax Summary

North Bolandia: First \$300,000 tax free. Any sum over this amount taxed at 40%.

South Bolandia: First \$200,000 tax free. A further tax free allowance of \$100,000 for each surviving child. The remainder taxed at 60%.

- A \$80,000
- B \$120,000
- C \$200,000
- D \$400,000
- E \$500,000

47 In the words of Ford Prefect in Douglas Adams' 'Hitch Hiker's Guide to the Galaxy':

"Time is an illusion. Lunchtime doubly so".

Arnold is fed up: his watch always seems to be lying to him. When he is at work, his watch seems to run very slowly, whilst when he is at home in the evening it seems to run much more quickly. He has, therefore, invented a new watch which shows apparent time rather than actual time. It is correct every day at 9 am but:

From 6 am to 9 am, it runs at $1\frac{1}{2}$ times the normal speed.

From 9 am to 1 pm and 2 pm to 5 pm, it runs at twice the normal speed.

From 1 pm to 2 pm (lunchtime), it runs at $\frac{1}{2}$ the normal speed.

From 5 pm to 10 pm it runs at the normal speed.

From 10 pm to 6 am it stops completely.

What does the watch show at 10 pm?

- A 3.00 am
- B 4.30 am
- C 11.00 am
- D 3.30 pm
- E 7.30 pm

48 Sara has a rectangular area of lawn measuring 20m by 15m. The lawn is surrounded by flower beds. She decides to give up part of her lawn to create a path 1.5m wide around the edge. Her local garden shop sells paving stones which measure 50cm by 50cm and which are ideal for the path.

How many paving stones should she buy?

- A 174
- B 384
- C 396
- D 402
- E 456

- 49 We invited 30 guests for dinner and arranged with the restaurant manager that each guest would be served two glasses of wine with their meal during the course of the evening. The manager calculated that exactly 20 bottles of wine would be required and so this was the number of bottles we ordered. However, it turned out that four of the guests preferred not to have any wine, while three people had only one glass and two people had their glasses filled three times by mistake. Two full glasses of wine were spilt and had to be refilled.

How many bottles of wine were left over at the end of the dinner?

- A 1
- B $1\frac{2}{3}$
- C $2\frac{2}{3}$
- D $3\frac{2}{3}$
- E $4\frac{2}{3}$
- 50 Glyn keeps a small herd of 10 cows which give birth to calves early in the year. The calves are then sold in the autumn of the year they are born. He does not have a bull but borrows one from a friend for the months of April and May each year. The government has decided to levy an emissions tax on all cattle on the basis of livestock units. A fully grown animal of 2 years or more (this includes all Glyn's cows and his friend's bull) counts as one livestock unit. Calves under 6 months are not counted at all but calves of between 6 months and 2 years count as 0.5 livestock units.

The table shows the dates of birth of Glyn's calves this year. How many livestock units are on his farm on 9 August?

Herd/Cow Number	Gender	Date of Birth
JD1141/0013	M	01 January
JD1141/0014	M	02 January
JD1141/0015	M	18 January
JD1141/0016	F	23 January
JD1141/0017	M	27 January
JD1141/0018	F	03 February
JD1141/0019	F	07 February
JD1141/0020	M	08 February
JD1141/0021	F	19 February
JD1141/0022	M	22 February

- A 4
- B 5
- C 10
- D 14
- E 15

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