BioMedical Admissions Test 4500/11

Wednesday 2 November 2016 **1 hour**

SECTION 1 **Aptitude and Skills**

Instructions to Candidates

Please read this page carefully, but do not open the question paper until you are told that you may do so.

This paper is Section 1 of 3. Your supervisor will collect this question paper and answer sheet before giving out Section 2. A separate answer sheet is provided for this section. Please check you have one.

You also require a soft pencil and an eraser.

Please complete the answer sheet with your:

- BMAT candidate number
- Centre number
- Date of birth
- Name

Speed as well as accuracy is important in this section. ***Work quickly, or you may not finish the paper.*** There are no penalties for incorrect responses, only points for correct answers, so you should attempt all 35 questions. All questions are worth one mark.

Answer on the sheet provided. All questions ask you to show your choice between options by shading one circle. If you make a mistake, erase thoroughly and try again.

Any rough work should be done on this question paper.

Calculators are NOT permitted.

Please wait to be told you may begin before turning this page.

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1 A school has 120 pupils, in five year groups. The following table gives some details about the numbers of boys and girls in each year group:

Year	Boys	Girls	Total
1	18	6	24
2		24	40
3	8		16
4			
5			24
Total		48	120

There is a probability of 1 in 12 that a boy selected at random is in Year 4.

What is the probability that a Year 4 pupil selected at random is a boy?

A 1 in 2

B 1 in 12

C 3 in 5

D 3 in 8

E 5 in 8

F 5 in 12

2 Forest fires in Indonesia this year have emitted 1.6 gigatonnes of CO_2. To put that in perspective, it has been estimated that the entire world must emit less than 1000 gigatonnes of CO_2 every year from now on if we are to avoid dangerous global warming. When forest vegetation burns, the amount of CO_2 released into the atmosphere can be taken back up again by the plants as they regrow. But in Indonesia it is not only the plants that are burning. Peat that has accumulated over thousands of years is also on fire, releasing buried carbon. Forest fires in Indonesia burn most fiercely in years when the region is drier, as it is this year. Rain arrived in Indonesia recently, and the number of new fires has dropped.

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

A The forest fires in Indonesia will prevent the achievement of world targets for CO_2 emissions.

B It is likely that some of the CO_2 from the fires in Indonesia will remain in the atmosphere.

C It is unlikely that forest fires will emit as much CO_2 next year as they have emitted this year.

D If forest fires can be prevented or better controlled, dangerous global warming will not occur.

3 Charges for Bed and Breakfast at the Donclair Hotel are as follows:

first two nights	-	$50 per night
third and subsequent nights	-	$40 per night

However, guests who stay for seven or more consecutive nights pay $40 per night for the whole of their stay.

Additionally, the bill for the hotel will include any charges incurred for the use of the car park. The charge for the car park is $5 per night or $25 for a seven-night permit.

John stayed at the hotel recently for five consecutive nights, keeping his car in the car park. He has now booked eight consecutive nights next month, and again he will keep his car in the car park. John never has any other charges added to his bill.

How much more than last time will John's bill for his next stay at the Donclair Hotel be?

A $100

B $105

C $115

D $120

E $125

F $135

4 When we listen to music, electrical waves in our brains tend to synchronise to the tempo. In a recent study scientists recorded the brain waves of musicians and non-musicians as they listened to music. Although the brain waves of both groups synchronised to many rhythms, those of non-musicians did not synchronise to particularly slow music. The non-musicians reported that they could not keep track of the tempo in slow music. This shows that becoming a musician requires an innate tendency for the brain to synchronise to the tempo of any speed of music.

Which one of the following identifies a flaw in the above argument?

A The tempo of slow music may be the most difficult tempo for listeners to follow.

B Musical training may develop the tendency for the brain to synchronise to music.

C Some of the non-musicians may decide to undertake musical training in the future.

D Becoming a musician may depend on a number of different abilities.

5   The students in a physics class took a practical test and a written test. Their results are shown in the following table.

Student	Amy	Ben	Con	Den	Els	Fio	Gho	Haz	Ina	Joe	Kai	Liz
Practical	12	14	10	15	8	10	11	19	4	9	13	6
Written	50	66	52	64	40	36	60	56	32	40	68	25

Their teacher has drawn a scatter graph, shown below, but one student's marks are missing.
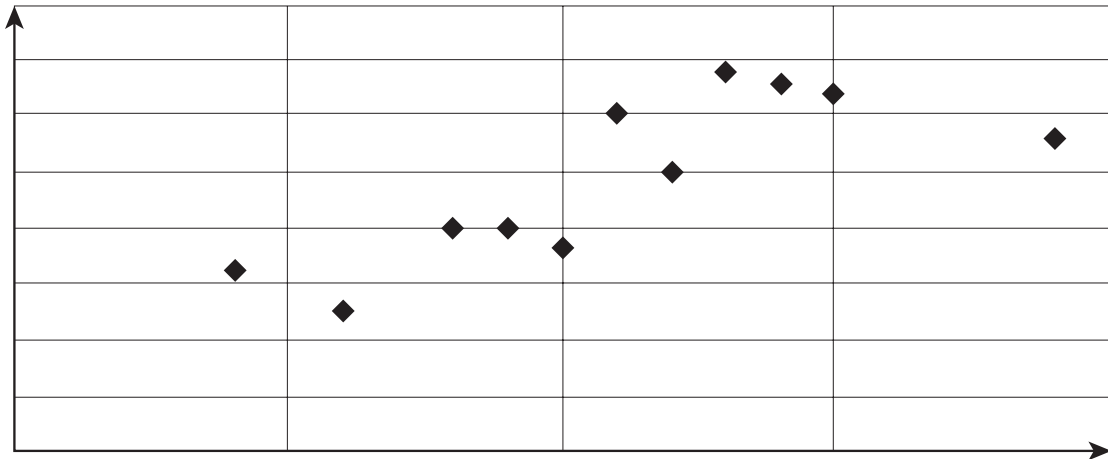
Which student's marks are missing from the scatter graph?

A   Con

B   Den

C   Fio

D   Gho

E   Joe

[Turn over

6 Wide-ranging increases in the cost of bringing a civil court case recently announced by the UK government are an assault on citizens' access to the law. It is tantamount to treating justice like a commodity. The latest proposals will increase fees by more than 1000% for claims of £200 000 or more. They will deter individuals and small businesses from taking cases to court, for fear of the cost if they lose, crippling anyone trying to recover monies owed to them. All civil cases, from divorce to landlords trying to get their property back, are affected. If justice is not to be out of reach of the majority of ordinary people, the government must think again. The civil courts are the backbone of a fair society and a prosperous economy.

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

A The planned increase in court fees is an attack on people's ability to seek justice.

B The government is proposing to treat justice like a saleable object.

C Individuals and business will be put off taking their grievances to court.

D The government needs to reconsider, or justice will be inaccessible to most people.

E The civil courts are crucial to fairness and prosperity.

7 Citizens of Beematia pay tax on their incomes each calendar year, as follows:

Age on December 31st	Under 50	50 and over
Tax free	first $9000 of income	first $14000 of income
20%	next $25000 of income	next $33000 of income
30%	all further income	all further income

In 2014, Paul paid a total of $5600 tax on his year's income. In 2015, however, he paid $800 less than in 2014, despite earning $2000 more.

What was Paul's total income in 2015?

A $24000

B $29000

C $33000

D $38000

E $43000

Questions **8–11** refer to the following information:

A new electronics company has released six new products this year, Product 1 at the start of January, Product 2 at the start of March, Product 3 at the start of May, Product 4 at the start of July, Product 5 at the start of September and Product 6 at the start of November. Sales from the factory are always in multiples of 50 units.

The charts below show the total number of each of the products sold in each quarter of the year and the income from sales of each product in December.

Sales

December income
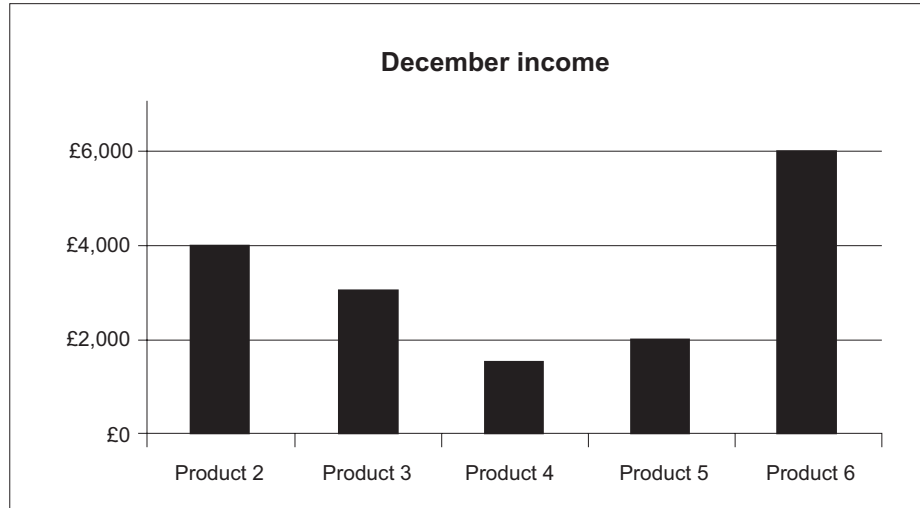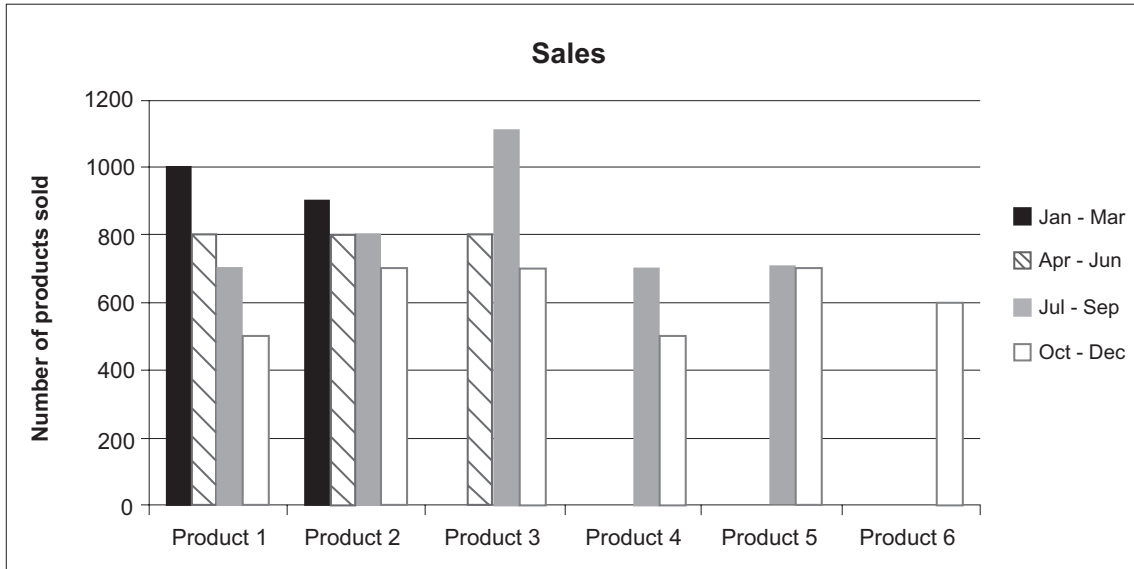
The prices at which the different products are sold are shown below:

	Product 1	Product 2	Product 3	Product 4	Product 5	Product 6
Price per 100 units	£1,500	£2,000	£1,500	£1,000	£2,000	£4,000

8   What was the total income for April to June?

    A   £33,000

    B   £39,000

    C   £40,000

    D   £45,000

    E   £64,000

9   When Product 2 had been on sale for three months, two thirds of its sales had been in the first month. How much money was generated from sales of Product 2 in June?

    A   £3,500

    B   £4,000

    C   £5,000

    D   £7,000

    E   £8,000

    F   £10,000

10   How many units of Product 6 were sold in November?

    A   150

    B   225

    C   300

    D   450

    E   600

[Turn over

11 Which of the products has had the highest average monthly sales (in terms of number of units sold) since it was released?

    A Product 1

    B Product 2

    C Product 3

    D Product 4

    E Product 5

    F Product 6

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12 Time is represented in an unusual way in Bolandia. The format is mm:hh, where mm represents the number of minutes to the next hour (hh). For example, 17:03 represents 17 minutes before 3am. However, there are still 60 minutes in an hour and 24 hours in a day.

Helen is staying in a hotel in Bolandia, and the clocks in the hotel display time in this way.

When she goes to bed one evening, the clock in her room reads 21:23. She wakes up a while later and sees that the clock says 23:04.

For how long has Helen been asleep?

    A 25 minutes

    B 1 hour 41 minutes

    C 2 hours 19 minutes

    D 4 hours 58 minutes

    E 5 hours 2 minutes

    F 6 hours 14 minutes

13 Research has shown that parents with high incomes tend to have children who score highly in IQ tests. It is very unlikely that this is because having rich parents improves one's IQ. Much more likely is that being intelligent tends to result in having a high income, since a high level of intelligence is required for entering well-paid professions such as medicine and law. The research did not examine whether the relationship between parental income and children's IQ scores was dependent on the nature of the parents' profession. If it were found that the children of high earners in sport and entertainment did not generally have high IQ scores, we could conclude that the intelligence level of children is largely genetically inherited from their parents.

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

A A high level of intelligence is not required for a career in sport or entertainment.

B The children of rich parents are likely to have a much better education than others.

C The children of high earners in sport and entertainment are not likely to have high IQ scores.

D A high level of intelligence guarantees entry to well-paid professions such as medicine and law.

14 At the beginning of last year, Sam had $1000 in her bank account.

The following graph shows the changes, in hundreds of dollars, in the balance of money in her account over that year.
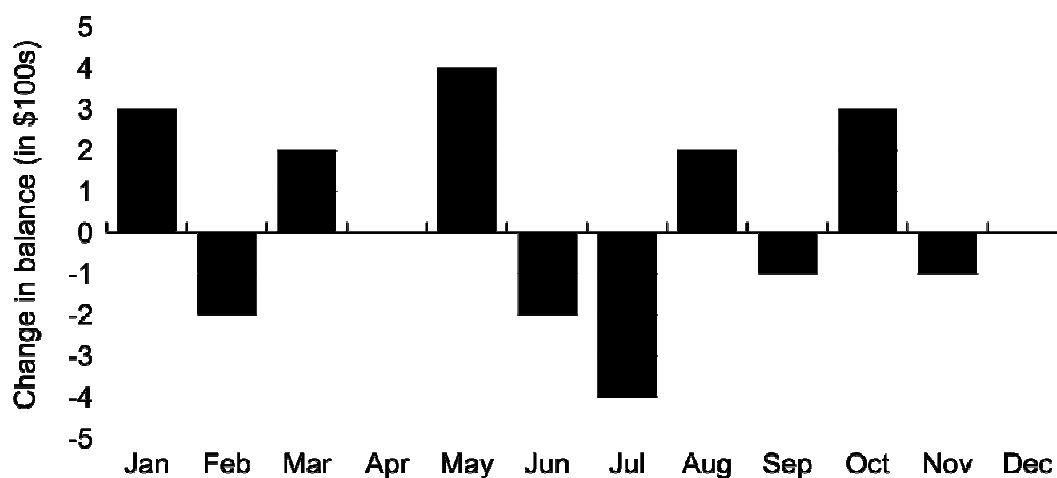
At the end of how many months last year did Sam have more than $1300 in her account?

A 2

B 3

C 4

D 5

E 7

F 9

15 A group of UK scientists have a rare opportunity to study human brains thanks to the promise of donations of brains after death by some members of a study group. The dissection of these brains and the counting of the numbers of synapses in them may add evidence to the idea of 'cognitive reserve': when a person gets older, they start to lose some brain synapses, with a negative impact on cognitive function. Those elderly people who have led a 'brain friendly' lifestyle when younger are thought to have created extra synapses, mitigating the naturally occurring loss of synapses through age. Adopting a 'brain friendly' lifestyle when younger should make it possible to retain cognitive performance into old age. Such a lifestyle is thought to include reading books, being socially active and physically healthy.

Which one of the following can reliably be concluded from the information in the above passage?

A The loss of brain synapses in old age is due to a poor lifestyle adopted when younger.

B On average, those elderly people who have lived a 'brain friendly' lifestyle would be expected to have a higher number of synapses in their brains.

C Deteriorating cognitive performance in old age is still little understood due to the limited opportunities to study the human brain.

D Reading, socialising and staying healthy will ensure optimum quality of life in old age.

E We should all be encouraged to donate our brains for medical research after death.

16 Five friends are sitting at a round table playing the 'LRC' dice game.

There are five dice. Each face of each die has one letter, 'L', 'R' or 'C', written on it.
Going clockwise around the table the friends are seated in the following order: Alun, Carmen, Ian, Prem and Ruthie.

Each friend has five coins for the game.

Each player in turn rolls the five dice and distributes their coins according to the letters on the top of the rolled dice: an 'L' on a die requires passing one coin to the player on their left, an 'R' on a die requires passing one coin to the player on their right, and a 'C' on a die requires putting one coin in the centre of the table.

The table below shows the outcome of the dice rolling of the five players:

Player	L	R	C
Alun	2	2	1
Carmen	2	1	2
Ian	1	2	2
Prem	2	1	2
Ruthie	1	2	2

At the end of the round, which player ends up with the fewest coins?

A   Alun

B   Carmen

C   Ian

D   Prem

E   Ruthie

17 Over-prescription of antibiotics by doctors who respond to patients' demands has raised the drug resistance of harmful bacteria. Drug-resistant bacteria can make routine surgery and minor cuts fatal if infections take hold. We could introduce penalties for doctors who over-prescribe, but this would not be enough. Given the scale and escalation of antibiotic resistance, we need to discover a new class of antibiotics. In the past, pharmaceutical companies have not regarded research on antibiotics as potentially profitable. Governments should give financial incentives to the pharmaceutical industry to intensify work on finding new classes of antibiotics which could be kept in reserve for emergencies such as a global epidemic. This would make it more attractive for pharmaceutical companies to carry out the necessary research.

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

A Governments will not allow routine sales of a new antibiotic, except in an emergency.

B In some countries antibiotics can be bought without a prescription from a doctor.

C Antibiotics are useless against viruses and often unnecessary against mild bacterial infections.

D Use of antibiotics in livestock production has increased bacterial resistance to several antibiotics.

18 I have a deposit of £25 000 that I want to use to help to buy a house. The purchase price of the house is £150 000, and the remainder of the cost of the house is to be financed using a mortgage.

My building society offers 5 mortgages, the details of which are published on its website as follows:

Mortgage	Interest Rate	Arrangement Fee	Maximum LTV
1	3.0% fixed	£750	75%
2	5.0% fixed	£0	80%
3	5.0% fixed	£500	90%
4	BBR + 1.0%	£2000	90%
5	BBR + 2.0%	£1000	95%
BBR: Bank Base Rate (variable)			
LTV: Loan to Value Ratio (ratio of loan to price of house)			

If the Bank Base Rate (currently 2.0%) stays the same over the next year, which of the mortgages that I am eligible for will cost me the least in fees and interest over the first year?

A Mortgage 1

B Mortgage 2

C Mortgage 3

D Mortgage 4

E Mortgage 5

Questions **19–22** refer to the following information:

Fracking in the US 2005–2012

The oil and gas industry has increasingly turned to hydraulic fracturing – known as 'fracking' – in a highly polluting effort to unlock oil and gas in underground shale beds across the United States. Fracking is already underway in 17 states, with more than 100,000 wells drilled since 2005.

Water used

Since 2005, fracking has used nearly 250 billion gallons of water across the nation (see the Table below). The greatest total water consumption occurred in Texas, at the same time as the state was struggling with extreme drought. In Colorado the amount of water used for fracking was enough to meet the water needs of nearly 200,000 households in the state for a year.

Chemicals used

Fracking fluid consists of water mixed with chemicals such as benzene that is pumped underground to frack wells. Although in percentage terms chemicals are a small component of fracking fluid, the total volume of chemicals used is immense. According to the oil and gas industry, 99.2% (by volume) of fracking fluid is water and the other 0.8% is a mix of chemicals. These can enter drinking water supplies from the well, or in the wastewater disposal process.

Global warming (GW) pollution released

Completion of fracking wells from 2005 to 2012 produced global warming pollution equal to the CO_2 emissions from 28 coal-fired power plants in a year.

Variation

Both water consumption and pollution levels varied sharply from state to state.

Table: Fracking states (ordered by quantity of water used)

State	Wells drilled 2005–2011	Wells drilled in 2012	Total water used 2005–12 (million gallons)	Total GW pollution: CO_2 equivalent (tonnes)
Texas	33,753	13,540	110,000	40,000,000
Pennsylvania	6,651	1,349	30,000	8,300,000
Arkansas	4,910	719	26,000	6,200,000
Colorado	18,168	1,896	26,000	23,000,000
West Virginia	3,275	610	17,000	4,100,000
Louisiana	2,327	139	12,000	2,900,000
North Dakota	5,166	1,713	12,000	6,500,000
Oklahoma	2,694	*Unavailable*	10,000	3,400,000
Ohio	334	234	1,400	420,000
New Mexico	1,353	482	1,300	1,700,000
Wyoming	1,126	468	1,200	1,400,000
Kansas	407	236	670	500,000
Utah	1,336	765	590	1,700,000
Montana	264	175	450	300,000
Tennessee	30	*Unavailable*	130	*Unavailable*
Mississippi	9	*Unavailable*	64	11,000
Virginia	95	*Unavailable*	15	120,000
TOTAL	**81,898**	**22,326**	**248,819**	**100,551,000**

19 The number of wells drilled in Oklahoma in 2012 was unavailable. Assuming it rose by the same proportion as neighbouring Texas against the 2005–2011 average, which of the following would be the best estimate of the missing number?

    A   385

    B   693

    C   1,081

    D   8,718

    E   9,103

20 The amount of water used per well varied significantly between states over the period from 2005 to 2012. Of the states for which data was available, Louisiana had the highest value and Utah had the lowest. What was the difference between those two values?

    A   280,000 gallons per well

    B   1,300,000 gallons per well

    C   4,500,000 gallons per well

    D   11,550,000 gallons per well

21 Which of the following statements can be concluded from the information in the table and the text?

> **1** The fracking fluids used in Texas from 2005 to 2012 contained 880 million gallons of chemicals, with the risk of contaminating drinking water.
>
> **2** A typical coal-fired power station in the US emits approximately 36,000,000 tonnes of CO_2 in one year.
>
> **3** A typical Colorado household needs around 130,000 gallons of water per year.

A 1 only

B 2 only

C 3 only

D 1 and 2 only

E 1 and 3 only

F 2 and 3 only

G 1, 2 and 3

H none of them

22 Which of the following, if true, would offer a convincing explanation for the wide variation in water consumption per well in different states?

> **1** Water supplies are more plentiful in some states than others.
>
> **2** The technology for extracting shale gas has developed slowly in the lifetime of fracking.
>
> **3** Some states have drilled many more wells than others.

A 1 only

B 2 only

C 3 only

D 1 and 2 only

E 1 and 3 only

**F** 2 and 3 only

G 1, 2, and 3

H none of them

23 The drawing below shows the outlines of three pieces of card (one square and two right angled triangles) which all fit exactly around the same size circle.
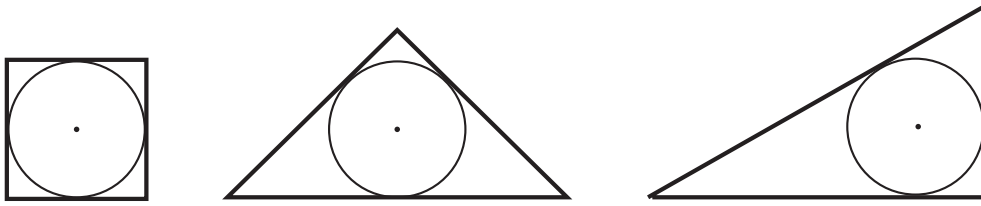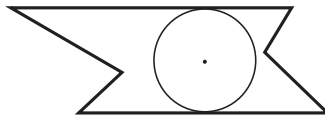

The pieces of card are pinned together through the centres of the circles and each of the card shapes can be rotated about the pin so that together the three shapes make an interesting outline.

Which one of the following is a possible outline of the three shapes?
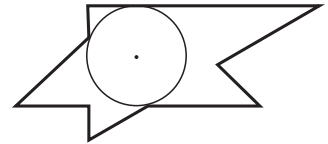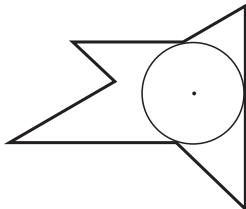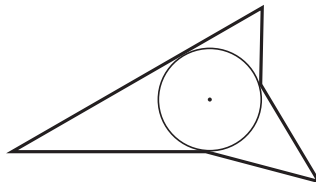
A   **B**   **C**

D   **E**

[Turn over
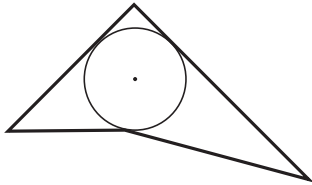
24 A brisk 30-minute walk five days a week is more effective than any other form of exercise for keeping weight down regardless of age, a major study has concluded. The effectiveness of 'high impact' walking in keeping weight down is greater than that from keep-fit activities including running, swimming and working out in the gym. Men who walked briskly for 30 minutes five days a week for four weeks had a BMI one unit lower than average; for women the difference was 1.8 units. For those who exercised or participated in sporting activities over similar periods, however, the results were less marked: men's BMI was 0.3 units lower and women's about one unit lower. The explanation for this is likely to be that calorie burning is optimised when walking because it is a constant, uninterrupted activity, unlike games such as tennis which are more stop-start.

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

A 'High impact' walking as a form of exercise is typically preferred by older people.

B There are ways of playing tennis that make it less stop-start.

C People who play sport often drink beers together afterwards.

D Keeping weight down is seldom cited as the principal reason why people play sport.

25 To mark 'Back to the Future' day on October 21st 2015, the Galaxy Cinema screened all three of the *Back to the Future* films, in order, twice.

The running times of the films were as follows:

Back to the Future	-	117 minutes
Back to the Future Part II	-	109 minutes
Back to the Future Part III	-	119 minutes

The performance times were arranged so that the first showing of the first film began at 10:15 and the second showing of the last film ended at 22:45. The interval between successive films was the same throughout the day.

How long was each interval between successive films?

A 5 minutes

B 6 minutes

C 10 minutes

D 12 minutes

E 15 minutes

26 The sale of self-help books that claim to reveal the secret of happiness generated $10 billion in 2009. But if you want to become more contented with life, you shouldn't read these books, because reading them will have the opposite effect. Researchers at the University of Montreal found that those who had read such books were more likely to be anxious and depressed than those who had never read them.

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

A Becoming more contented with life may be an unrealistic goal.

B Being anxious and depressed may prompt people to read self-help books.

C Some of those who have never read self-help books may be anxious and depressed.

D Some people who are anxious and depressed may never read self-help books.

27 The table below shows a record of my blood pressure and pulse readings over nine days.

Day	Systolic	Diastolic	Pulse
Mon am	135	98	74
Mon pm	138	94	75
Tue am	139	97	79
Tue pm	149	96	82
Wed am	146	96	68
Wed pm	133	93	77
Thu am	128	84	71
Thu pm	149	81	86
Fri am	149	97	82
Fri pm	146	97	83
Sat am	134	91	69
Sat pm	165	99	85
Sun am	141	86	87
Sun pm	139	91	77
Mon am	126	88	74
Mon pm	145	78	83
Tue am	163	96	82
Tue pm	129	90	87

What was my pulse on the occasion when I had the biggest difference between systolic and diastolic readings?

A 68

B 81

C 82

D 83

E 85

F 86

G 87

28 Recent theories about the causes of cancer have held that most cancers are caused by internal factors, the result of inevitable mistakes in the human body rather than anything environmental. This would seem to imply that whether or not a person develops cancer is entirely out of his or her control; what that person does in terms of lifestyle choices is irrelevant. And yet the latest high-profile study has strongly challenged this. It estimates that between 70 and 90 per cent of the most widespread cancers have extrinsic causes, such as ultraviolet radiation, pollution and stress. If this study is to be believed, then whether or not you develop some cancers is no longer just something you can blame on your biology, but is to a significant extent within your own control.

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

A The latest study is more accurate than the previously accepted theories.

B The risk of developing cancer is simply down to extrinsic factors.

C There can be no ways of preventing the human body from making cancer-causing mistakes.

D People have some control over the influence of extrinsic factors such as stress or pollution.

29 I have a piece of string which I stretch out in a straight line. I then take a thin red felt-tip pen and make a small mark in the middle of the string.

Then I fold the string in half and again stretch it out, holding onto the fold and to the two ends. This time I make a small mark in the middle of both strands of the folded string with a thin green pen.

Then I fold it in half again and make a small blue mark in the middle of each strand of the folded string.

Finally I fold it in half once more, and this time I make a small purple mark in the middle of each strand of the folded string.

Now I unfold the string and stretch it back out to its full original length.

How many marks are there on the string in between the two green marks?

A 6

B 7

C 8

D 9

E 12

F 13

[Turn over

30 People wonder whether or not machines could ever become conscious, but it's obvious that one day they will. After all, if consciousness is just the result of the working of the brain, and if the brain is just a complicated machine, then what's to stop machines becoming complex enough to be conscious? Every year machines get more and more complex. It's only a matter of time before they acquire consciousness.

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

A It is impossible for a machine ever to become conscious.

B The argument does not specify what 'a matter of time' entails.

C The argument confuses science fiction with the reality of technological progress.

D The argument depends on unwarranted claims about the mind and the brain.

31 There are two types of goal that can be scored in the sport of Chargeball: a fess, worth 7 points, and a pale, worth 2 points.

In a match played last night, the Argents beat the Sables by just 1 point.

The Argents scored one fess fewer than the Sables.
The Sables scored the same number of fesses and pales.
The Argents scored exactly twice as many pales as fesses.

How many pales did the Argents score in last night's match?

A   4

B   6

C   8

D   10

E   16

F   20

Questions **32–35** refer to the following information:

Vegetable oils in the modern diet

Vegetable oils other than olive oil were not introduced in significant amounts into the human diet until the early part of the 20th century. Some people believe that, as we are the genetic product of a hunter–gatherer culture, these are not natural to us as they do not match certain balances of nutrients humans had when they fed mainly on such things as grain, berries and animals and most of our fat came from animal carcasses. They go on to argue that there has not been enough time since those days for evolution to have changed the nutritional requirements of humans.

Vegetable oils used in cooking, salad oils, margarine and processed foods can supply around 15% of the total daily energy intake in a western diet. This has had the result of raising the dietary ratio of omega-6 to omega-3 fatty acids to its current value of more than fifteen to one. In hunter–gatherer diets, the omega-6/omega-3 ratio was closer to two to one.

However, recent research has indicated that there are benefits to the heart from eating fats which have a high polyunsaturate content, as many vegetable oils do. One study has suggested that for every 5% increase in polyunsaturated fat consumption there was a 10% fall in heart disease.

Some key factors which are thought by some to lead to a healthier diet are as follows:
- the ratio of omega-6 to omega-3 fatty acids.
- the erucic acid content: in 2003, Food Standards Australia set a Provisional Tolerable Daily Intake (PTDI) of about 500 mg/day of erucic acid.
- the percentage of polyunsaturates: it is recommended that adults get no more than 11% of their energy from saturated fats. Vegetable oils have an energy content of about 3700 kJ/100g.

The typical fat consumption of an adult in the EU was estimated in the year 2015 to be 143 grams per day total fat of which 30% was vegetable oils.

The table below shows the fatty acid composition of a number of common oils.

Table of Vegetable Oils Units: grams fatty acids per 100 grams oil							
	Fatty Acids	**Canola**	**Coconut**	**Flaxseed**	**Mustard**	**Olive**	**Sunflower**
Saturated	Palmitic Acid	4.0	8.2	5.3	3.8	10.9	5.9
	Stearic Acid	1.8	2.8	4.1	1.1	2.0	4.5
	Other acids	1.3	75.5		1.4	0.6	
	Total Saturated	7.1	86.5	9.4	6.3	13.5	10.4
Monounsaturated	Oleic Acid	56.1	5.8	20.2	11.6	72.3	19.5
	Erucic Acid	0.6			41.2		
	Other acids	1.9			6.4	1.6	
	Total Monounsaturated	58.6	5.8	20.2	59.2	73.9	19.5
Polyunsaturated Omega-6		20.3	1.8	12.7	15.3	9.2	65.7
Polyunsaturated Omega-3		9.3	0.0	53.3	5.9	0.8	0.0
	Total Polyunsaturated	29.6	1.8	66.0	21.2	10.0	65.7
	Ratio Omega-6: Omega-3	2.2:1	no Omega-3	0.2:1	2.6:1	11.5:1	no Omega-3
TOTAL		**95.3**	**94.1**	**95.6**	**86.7**	**97.4**	**95.6**

32 What is the polyunsaturate content of a 50:50 mixture of olive and sunflower oils as a percentage of the mass of the mixture?

    A 37.9%

    B 46.7%

    C 74.9%

    D 75.7%

    E 84.6%

33 Which one of the following is an assumption made in thinking that the optimal omega-6/omega-3 ratio is approximately two to one?

    A The balance of nutrients that humans had when they fed on hunter–gatherer diets was more appropriate than the balance they get from modern diets.

    B There were no significant differences between the diets of various hunter–gatherer groups around the world.

    C The recent 10% fall in heart disease was related more to the ratio of omega-6/omega-3 than to the overall fat consumption.

    D The increasing incidence of heart disease has been in line with the increased use of vegetable oils in cooking.

    E Imbalances in the ratio of omega-6 to omega-3 caused by increased consumption of vegetable oils can be offset by other components of a diet.

34 If the only vegetable oil used by a typical European consumer is canola oil, what is his or her intake of erucic acid as a percentage of the PTDI?

    A 26%

    B 52%

    C 120%

    D 172%

    E 280%

35 What would be the percentage of flaxseed oil in a mix of flaxseed and sunflower oils if the omega-6/omega-3 ratio were two to one?

    A 10%

    B 12%

    C 20%

    D 41%

    E 70%

END OF TEST