



BioMedical Admissions Test

Sample B

60 minutes

SECTION 1

Thinking 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 might not finish the paper.** There are no penalties for incorrect responses, only marks for correct answers, so you should attempt **all** 32 questions. Each question is worth one mark.

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

You **must** complete the answer sheet within the time limit.

You can use the question paper for rough working or notes, but **no extra paper** is allowed.

Calculators are NOT permitted.

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

This question paper consists of 21 printed pages and 3 blank pages.

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- 1 Evidence suggests that children whose parents are married tend to fare better – financially, academically and socially – than children of unmarried parents. The government is therefore proposing a tax break for married couples, whereby married couples are reimbursed by approximately £150 per person per annum. This idea is flawed for several reasons. First, it punishes those whose partners have left them and broken up the marriage. Secondly, it punishes those who, through no fault of their own, have been unable to find a partner. Thirdly, it assumes that people in unhappy relationships will persevere in their unhappy state for something like £12.50 a month. This is patently absurd. Finally, it makes the bogus assumption that maintaining a poor marriage will be better for the children than separation.

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

- A A poor relationship could be more damaging for a child than separation.
- B Children whose parents are married tend to fare better than children of unmarried parties.
- C It is absurd to think that people will persevere in an unhappy relationship for the sum proposed.
- D The government’s proposal punishes single parents.
- E The government’s idea of giving married couples tax breaks is flawed.

- 2 Below is a table showing the value of Lucy’s shares. They started at £3.00 in 2011 and in 2016 they were worth £22.68.

<i>year</i>	<i>share value</i>
2011	£3.00
2012	£4.20
2013	£6.30
2014	£9.45
2015	£15.12
2016	£22.68

When did Lucy’s shares have the biggest percentage increase?

- A 2011–2012
- B 2012–2013
- C 2013–2014
- D 2014–2015
- E 2015–2016

- 3** Shooting is not just positive for rural economies, but is also necessary for conservation efforts. In various peripheral rural places in Britain, sport shooting related jobs are a mainstay of local economies, often accounting for as much as a third of the labour market. However, since humans disturbed the ecosystem by eradicating the top predators, destroying habitats and introducing non-native species, we are also now responsible for reducing further damage – conserving – by continuous management. This means shooting overpopulated species to minimise the risks of disease and starvation, and dominant foreign species in order to conserve weaker native ones. Additionally, the management of the environment for the purposes of sport shooting can have very positive conservation effects; for example, many endangered birds of prey now thrive on shooting estates.

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

- A** Wild flower numbers and bee populations have increased on shooting estates.
- B** Many animals that are shot are sold on to butchers and enter the food market.
- C** People from all over the world travel to Britain to engage in sport shooting.
- D** Many native species such as the red squirrel are at threat from foreign species.
- E** Re-introducing top predators such as wolves is a more effective means of conservation.

- 4** Children spend far too long in schools analysing poems when they should simply be learning to enjoy them. Thankfully, a new approach requires that, instead of focusing on analysing technical aspects of writing such as the writer's use of imagery or alliteration, children will be required simply to learn poems so that they can recite them by heart. This makes good sense. What is the use of learning how to analyse literature if you have no appreciation of its actual value? If they then become interested in it enough to study it at A level or at university, that can be when they learn to analyse in detail the author's craft.

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

- A** Analysing the writer's craft could enhance the appreciation of the poem.
- B** Children are not currently required to learn poems off by heart.
- C** English will continue to be a subject available for study at A level or university.
- D** For something to be classed as poetry it must include either alliteration or imagery.
- E** Learning a poem off by heart will enable you to appreciate it more.

- 5** A Prime Minister has a difficult judgement to make when deciding whether to sack one of their ministers or not. Faced, for example, with a minister involved in some kind of scandal, the Prime Minister might feel they should sack them to show they stand up for integrity and high moral standards, or, on the other hand, allow them to remain in post for other reasons such as loyalty to a colleague or a belief that they are, on balance, doing a good job. Sacking ministers shows that the Prime Minister is prepared to live by principles, even if by so doing they lose valued colleagues. The electorate will judge the Prime Minister to have acted with integrity: that is an invaluable perception for anyone wishing to remain in power.

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

- A** It is in the Prime Minister's electoral interests to err on the side of sacking.
 - B** Restoring public trust at a time when the reputation of politicians is low is a priority.
 - C** Ministers are often sacked for a relatively minor wrongdoing when this is not in the interests of the country.
 - D** Ministers involved in scandals should always be sacked.
 - E** Politicians seek to stay in power at all costs.
- 6** Jake has a 500 ml bottle of orange squash that he has made according to the instructions on the bottle of concentrate. The instructions dictate that he should add 4 parts water to 1 part concentrate. He accidentally spills his squash, and now there is only 400 ml in the bottle. He then tops up the remainder with concentrate.

What percentage of the squash in his 500 ml bottle is now concentrate?

- A** 18%
- B** 20%
- C** 28%
- D** 36%
- E** 40%

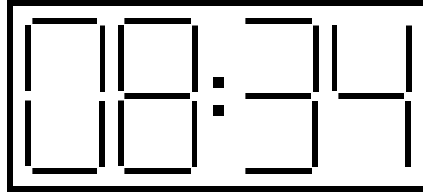
- 7 A Youth Centre runs a number of football teams for boys of different ages. Each season, one prize is awarded to the player who has given the best all-round performance. Five players have been nominated as possible recipients of this year's prize. The manager has decided not to reward any player who has missed two consecutive training sessions more than twice, and the manager will also exclude anyone who has failed to score a goal from a penalty kick more than twice. After these criteria have been applied, the prize will go to the player who has scored the highest number of goals.

<i>player</i>	<i>no. of years in a team</i>	<i>no. of times late for training</i>	<i>no. of times missed two consecutive training sessions</i>	<i>no. of penalty kicks taken</i>	<i>no. of penalties scoring a goal</i>	<i>total no. of goals scored</i>
David	2	3	2	16	13	32
John	3	2	1	10	9	26
Colin	2	4	1	13	9	30
Mike	1	2	2	12	10	29
Graham	2	0	3	8	7	36

Which player will receive the best all-round performance prize?

- A David
- B John
- C Colin
- D Mike
- E Graham

- 8 Most railway stations have digital clocks that display the time in 24-hour format. I recently undertook a train journey from Exeter to Aberdeen. As the train left Exeter, the clock on the platform showed:



I lost track of time as I read a book and then dozed. I eventually became aware of the train coming to rest and the guard announcing 'Carlisle'.

I opened my eyes, and found that I could only see the top of the platform clock (because of the hoarding in the way) as follows:



Approximately what time was it, to the nearest hour, when the train stopped at Carlisle?

- A 1 o'clock
- B 2 o'clock
- C 3 o'clock
- D 4 o'clock
- E 5 o'clock

- 9** There has been a significant rise in the number of children with rickets. This has resulted from the airless, indoor world we have created for ourselves. Rickets is caused by a deficiency of vitamin D, which is produced in response to sunlight on the skin. Where children used to play outside they mostly stay indoors immersed in virtual realities via various electronic media. Instead of long summer evenings outdoors, we close the curtains to prevent sunlight falling on our screens. The lure of technology is compounded by adult fears of the risks to children if they are left to roam free in the outside world; in any case there are fewer accessible public spaces for open air activity. Curing this will require an awful lot more than vitamin pills.

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

- A** There has been a large growth in areas designated as national parks and in urban parkland.
- B** Diet has a much more significant effect on vitamin D intake than sunlight.
- C** The incidence of rickets is confined to a few hundred cases a year.
- D** In the 19th century, when the incidence of rickets was much higher, terrible air pollution and smog affected the large population of city dwellers.
- E** Many people can't afford or be relied on to take vitamin D supplements.

- 10** When mobile phones first became relatively inexpensive many parents bought them for their teenage children on the grounds that having access to a phone would keep them safe. High profile cases of abduction at the time underscored the need to improve safety for young people. But today mobile phones invariably have access to the internet, which has made young people vulnerable to stalking and cyberbullying. Since the stated case for buying teenagers mobile phones was to keep them safe, we should now restrict their access to them.

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

- A** The incidence of cyberbullying and stalking does not undermine the respects in which mobile phones keep teenagers safe.
- B** If you restrict young people's access to mobile phones they will continue to bully one another on other devices.
- C** Access to mobile phones has not stopped teenagers from being attacked while out alone at night.
- D** The majority of teenagers are not affected by the problems of stalking and cyberbullying.
- E** It ignores the fact that there are other ways of keeping children safe.

- 11** Either young people are getting cleverer each year or examinations are becoming easier for students to pass. Since there is very little evidence from IQ testing and other supposed benchmarks that young people are more intelligent now than in the past, we must conclude that the examination system is easier for students today than it was in the past.

Which one of the following most closely parallels the reasoning used in the above argument?

- A** Farmers must choose between using organic or non-organic fertilisers on their land. Organic fertilisers can produce a lower crop yield and farmers may find it difficult to change to organic methods if they have been using non-organic methods for some time. Farmers should therefore consider the longer-term impacts of their decisions.
 - B** Every year millions of holidaymakers decide whether to holiday in the UK or abroad. Since most of us like to have a degree of predictability in terms of holiday weather, we should not be surprised that, given the choice, most people would holiday abroad.
 - C** Researchers have looked at the communication between different animals and found that meerkats have a series of alerts and calls that fall into two categories, greetings and alarms. Since we can be sure that this meerkat is not calling as a greeting, we must accept that he is attempting to raise the alarm.
 - D** Wood burning stoves are a better way to heat your home than an open fire. Wood burning stoves are highly efficient, whereas an open fire loses a great deal of heat up the chimney. More people should therefore install wood burning stoves in their homes.
 - E** When allocating emergency appointments, receptionists prioritise children and the elderly above other patients. If you are neither a child nor elderly, you may have to wait longer to see a doctor.
- 12** Recently, packets of Amblers crisps have had 'money-off' coupons inside them. Some coupons are worth 9p, some are worth 14p and some are worth 20p.

George has been collecting these coupons. He has more 14p coupons than 9p coupons, and more 9p coupons than 20p coupons. The total value of all of his coupons is exactly £1.50.

How many coupons has George collected?

- A** 9
- B** 10
- C** 11
- D** 12
- E** 13

- 13 Joanne is studying the period 1900–1950 and has decided to buy a new book to help with her studies. There are five different books available at her local bookshop, the details of which are summarised below:

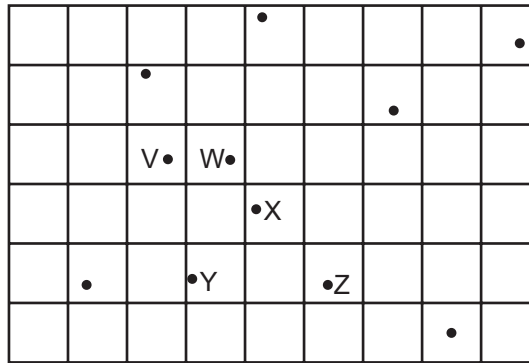
<i>title</i>	<i>period covered</i>	<i>hardback?</i>	<i>illustrated?</i>	<i>price</i>
<i>History of the 20th Century</i>	1900–2000	yes	no	£45
<i>The Illustrated Guide to History</i>	1750–2000	no	yes	£50
<i>Beginner's Guide to History</i>	1700–1850	no	no	£40
<i>History for All</i>	1750–1950	yes	yes	£60
<i>All About History</i>	1800–1900	yes	no	£55

On Tuesday, Joanne chose to buy the cheapest book that would satisfy her requirements, and went away to get the exact amount of money needed to buy it. When she returned the following day to buy her chosen book she found that there was a sale and all of the books had been reduced by 20%. She then decided instead to buy the most expensive book that she could with the money she had, and which still satisfied her requirements.

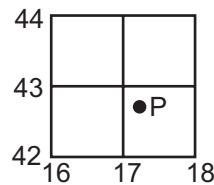
How much money did Joanne have left over once she had bought the book?

- A £0
- B £1
- C £2
- D £3
- E £5

14 The diagram below shows part of a map of Ruralia.



A group of students are on an expedition and must meet their teacher at Longwood, grid reference 787634. Unfortunately, they have been given a version of the map with the numbers missing from the gridlines, and the place names have been omitted too. They have a list of grid references for some places on the map, and are trying to work out which point to head for in order to be sure of meeting their teacher.



They have a set of instructions showing how the grid references work:

The grid reference of point P is 172427. Go to vertical line to the west of the point, read the number 17. Estimate how many tenths across the square the point appears at, hence 172. Go to horizontal line to the south of point P, read the number 42, estimate how many tenths up the square the point is, hence 427. This gives 172427 as the complete grid reference number.

Here is the list of the grid references / place names the students have been given.

Hilltop	763613	Riverside	781614
Sunnybank	804613	Topfield	777634
High Moor	792626	Longwood	787634
Highscar	773649	Stakefell	793658
West Pasture	815642	Lower Green	837654
Little Tarn	825605		

Using this information to help you, which of the places marked on the map is Longwood?

- A V
- B W
- C X
- D Y
- E Z

- 15** Charities address the negative effects of market economies, which apportion goods to people based on their ability to pay as opposed to their needs. The work of charities conceals the true impact of the market system and, worse, leaves the market in place to produce further negative outcomes. Charities therefore effectively perpetuate the problems the market system creates. Since it is immoral to support a practice that perpetuates the very problems it is supposed to resolve, giving to charity cannot be morally justified. After all, if the effects of a system are morally wrong, then it is immoral to sustain that system.

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

- A** Charity does not address the cause of the problem.
- B** Charitable giving is necessary because of the market system.
- C** Charities perpetuate the negative effects of market economies.
- D** Giving to charity is immoral.
- E** Charities conceal the negative effects of the operation of the market.

- 16** In a survey done by a school librarian during one year, borrowing of books in the library declined by 20%. Amongst books borrowed, rates of late return or loss of books also increased by 10%. On the other hand, student use of computers in the library increased by 25%. This finding was reinforced by frequent complaints from students that there were no computers available when they needed to use them. The librarian concluded that the best response to these findings was to cut the number of books and purchase more computers. 20% of books were sold off or given away, the space given over to additional computer tables, and the library's entire available budget given over to purchasing new computers.

Which one of the following is an underlying assumption of the librarian's reasoning?

- A** The library should cater for the students' preferences rather than trying to change them.
- B** A decline in the borrowing of books indicates a decline in reading.
- C** Students were unjustified in complaining about the lack of computers.
- D** Students' educational achievement is improved by using computers.
- E** Library use will necessarily increase if more computers are provided.

- 17 In a situation where every course of action is immoral, there still remains the ability to act for the greatest good for the greatest number. Therefore, the outsiders ought to be eliminated at the least possible cost and with the least possible delay. I am sorry to arrive at that conclusion, but it is the right step.

Which one of the following best illustrates the principle contained in the above argument?

- A The swiftest and cheapest option is often the least immoral action.
 - B The action that harms the least number of people is the best possible action.
 - C Where all options are immoral, it is necessary to consider cost and speed.
 - D An action cannot be considered totally immoral if it is the right action.
 - E An action cannot be considered totally immoral if it is done for the greater good.
- 18 At the start of the school year, a village shop stocks and sells a range of stationery items. The table below shows details of the wholesale costs and retail prices for a number of the items sold.

<i>items</i>	<i>wholesale cost per pack of 12</i>	<i>retail selling price per 1 item</i>	<i>number sold in one week</i>
<i>crayons</i>	48p	10p	180
<i>felt tips</i>	72p	12p	150
<i>pencils</i>	24p	6p	200
<i>pens</i>	36p	15p	150
<i>rulers</i>	60p	30p	40

Of the five items sold, which two together made the most profit for the shop owner?

- A crayons and pencils
- B crayons and pens
- C felt tips and pencils
- D felt tips and rulers
- E pens and rulers

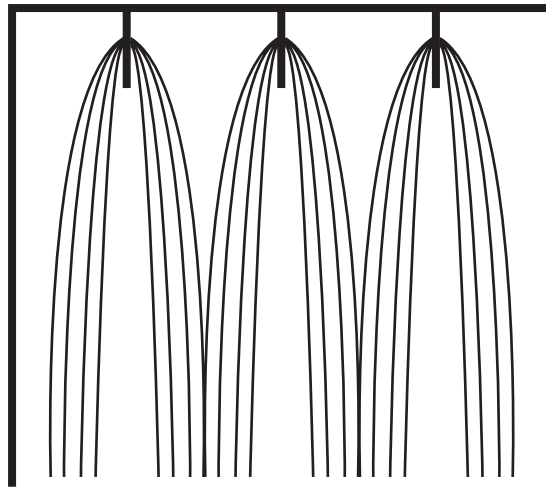
- 19 I am redecorating my house and need to buy wallpaper for one of the rooms. I need to buy 54 m of wallpaper in total and want to pay the lowest price. The table below shows the details of the five types of wallpaper I want to choose between.

<i>wallpaper type</i>	<i>roll length</i>	<i>cost per roll</i>	<i>special offers</i>
<i>woodchip</i>	2 m	£25	every fifth roll is free
<i>vymura</i>	3 m	£35	10% discount for orders over £500
<i>anaglypta</i>	3 m	£40	20% discount for orders over £500
<i>embossed</i>	4 m	£50	25% discount on all orders
<i>fabric effect</i>	5 m	£100	buy one, get one free

Which type of wallpaper should I choose?

- A woodchip
- B vymura
- C anaglypta
- D embossed
- E fabric effect

- 20** The diagram below shows the method of construction of a book with four folded sheets in each block, and three blocks in total. Page one is the first page of the first block of four sheets. At the centre of each block, you can see the stitching that binds the book together.



A book is to be made using the same technique but with eight sheets of paper in each of the three blocks.

Which of the following pairs of pages could be in the centre of a block (that is, if opened there, the stitching would be visible)?

- A** 46 and 47
- B** 47 and 48
- C** 48 and 49
- D** 63 and 64
- E** 64 and 65

- 21** Increased wealth in many regions and an ever-growing population have produced an unprecedented demand for fish. This increased demand is occurring at a time when over 70% of the world's marine fish stocks are now overfished or already fished at full capacity. One possible solution is the continued expansion of aquaculture, a long-standing means of farming fish for human consumption. Controls must be put into place, however, to manage the potential environmental risks associated with fish farming, such as water pollution and transmission of disease to adjacent wild fish populations. Moreover, the aquaculture sector has yet to devise effective methods for rearing some commercially popular predator species, such as tuna, without having to feed them wild-caught fish, which contributes to the pressure on our oceans.

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

- A** We should encourage people to switch from consuming marine fish species to consuming freshwater fish species, such as those living in lakes and rivers.
 - B** Nothing can be done to make fishing in the oceans less damaging to the state of fish stocks.
 - C** In the long term, people may have to adopt a vegetarian diet due to the environmental problems associated with the production of all kinds of fish and meat products.
 - D** At present, fish farms should avoid trying to rear predator fish, such as tuna.
 - E** The farming of only some kinds of fish is likely to result in environmental damage.
- 22** Welfare benefits create a culture of dependency and an unproductive workforce. There are people who stay on welfare benefits for years and never look for employment. Two years ago the government introduced tougher restrictions on the eligibility to receive benefits and the number of recipients has now fallen by 20%. The government should therefore toughen these restrictions even more to further reduce the number of welfare claimants.

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

- A** It rests on the false assumption that people are happy to stay on benefits and not look for work.
- B** It gives the impression that the benefits are undeserved.
- C** It ignores the possibility of other causes for the fall in the number of welfare recipients.
- D** It equates the recipients of benefits with an unproductive workforce.
- E** It implies that welfare recipients are in this situation due to their own fault.

- 23** The financial circumstances of many young people make it difficult for them to forego paid employment for an extended period in order to undertake unpaid internships or work experience placements. In many industries, it is unlikely that a young person will gain entry-level paid employment unless he or she has held one of these temporary unpaid positions. Therefore, the current system of unpaid internships creates an unfair advantage for individuals from more affluent backgrounds.

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

- A** Unpaid internships and work experience placements often provide young people with an important opportunity for gaining references.
 - B** The highest proportion of unpaid internships and work experience placements are based in a few central locations, such as London.
 - C** Unpaid internships and work experience placements come in various lengths of duration from one to two days up to a number of months.
 - D** Some young people find themselves moving from one unpaid position to another without being able to land a paid job.
 - E** Some schools and other organisations have programmes in place to help match young people with internships or work experience placements.
- 24** A car journey begins with a 15 km drive at an average speed of 60 km/hour, then 5 hours on the motorway, including two 15-minute rest stops, travelling at an average driving speed of 80 km/hour, and finally a 20 km drive at an average speed of 40 km/hour from the motorway to the destination.

If the destination is reached at 12:00 midday, at what time did the journey begin?

- A** 5:18 am
- B** 5:25 am
- C** 5:45 am
- D** 6:15 am
- E** 6:45 am

- 25** Car parking charges are shown in the table below. Brian wants to park his car for a period of 7.5 hours, whilst he is at work. He buys a ticket in the morning when he arrives at the car park. Due to the close proximity of the car park to his place of work, he is able to return to his car to buy a new ticket as many times as needed.

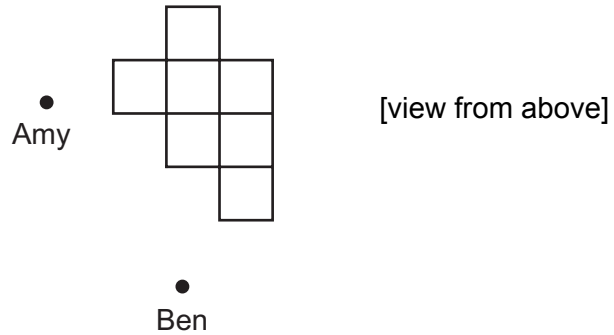
<i>up to</i>	<i>car parking charges</i>
1 hour	£0.80
2 hours	£1.20
3 hours	£1.70
4 hours	£2.40
5 hours	£3.50
6 hours	£4.20
7 hours	£5.20
8 hours	£6.20
over 8 hours	£8.20

What is the most Brian can save by returning to the car to buy new tickets compared to buying one 8-hour ticket?

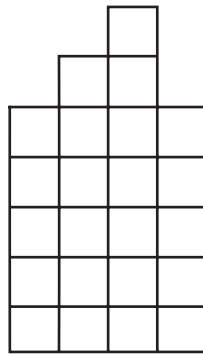
- A** £1.10
- B** £1.40
- C** £1.60
- D** £2.10
- E** £3.60

- 26 A number of identical boxes are piled up, waiting to be loaded into a delivery van. Amy and Ben are about to load them into the van.

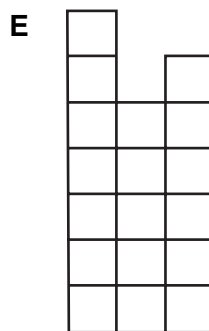
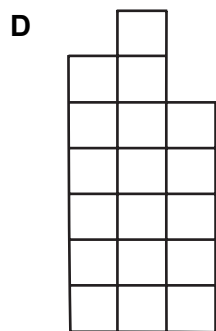
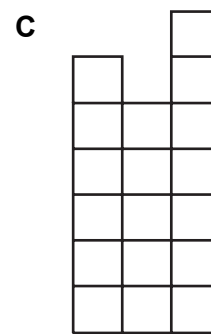
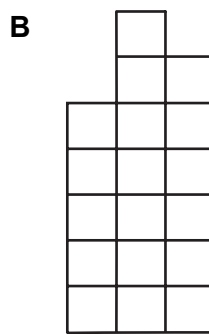
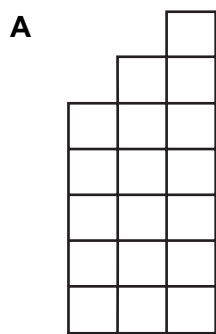
The appearance of the pile of boxes and the positions of Amy and Ben at present are shown below:



Amy's view of the pile is:



Which one of the following could **not** be Ben's view of the pile?



- 27** You can only grasp the true meaning of Pushkin's poetry if you can read it in its original Russian form. Your doctoral thesis on Pushkin's work shows acute insight so I can tell you have a mastery of the Russian language.

Which one of the following most closely parallels the reasoning used in the above argument?

- A** Only when there is a clear sky will you be able to practice some astronomy. Tonight is forecast to be cloudless so you will be able to do some stargazing.
 - B** You have to place your dustbin on the street outside before 8 a.m. today for the refuse collectors to deal with it. Since you put yours in the correct place at 7 a.m. your dustbin will be emptied.
 - C** You have to score at the 98th percentile or higher in a standardised IQ test to become a member of Mensa. As you are not a member of Mensa it is clear that your IQ falls outside the top 2%.
 - D** Only towns that have a bypass to divert their traffic are able to create a pedestrian-only high street for local shoppers. I see your town has the benefit of traffic-free shopping, so the bypass must now be open.
 - E** You need to have 45 hours in the air before you can take a pilot's licence test. You have only flown 18 hours so you will not be able to take the test.
- 28** In the main draw of a lottery, six of the balls (which are numbered from 1 to 49) are selected at random, then the numbers chosen are rearranged and displayed in ascending numerical order.

For instance: 3 17 20 29 34 45

In one draw recently, I noticed that the six numbers were made up of a total of ten digits, all different. The lowest number on this occasion was 1 and the highest number was 49, so the range of the six numbers was 48, the greatest possible range for the lottery main draw.

What is the smallest possible range when the six numbers in the main draw of the lottery have a total of ten digits, all different?

- A** 21
- B** 23
- C** 27
- D** 31
- E** 32

- 29** We need to change science lessons so that they give children a correct view of modern science. Children are often taught in science lessons that matter can exist in three different states – solid, liquid and gas. However, developments in science suggest that this is far too simple a picture. Increased knowledge of the universe has shown that many other states of matter exist, for example, plasma and liquid crystal. Plasma is thought to be the state of 99% of matter in the universe, so the traditional states of matter are in a very small minority. So the traditional view is giving children a false, indeed unscientific, view of the universe.

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

- A** School science has failed to keep up with modern scientific developments.
 - B** School science gives an over-simplistic view of the nature of matter.
 - C** School science gives children an incorrect view of the universe.
 - D** School science suggests matter is made up of three different states.
 - E** School science should be updated so that it reflects modern science.
- 30** Fiona is going to put some shelves up in her living room. The shelves must each be 1.80 m long and have a depth of at least 40 cm. There will be five shelves in total. The different prices for wood are shown in the table below.

<i>length</i>	<i>depth</i>		
	<i>30 cm</i>	<i>45 cm</i>	<i>60 cm</i>
0.50 m	\$0.90	\$1.35	\$1.50
1.00 m	\$1.70	\$2.55	\$2.80
1.50 m	\$2.50	\$3.75	\$4.20
2.00 m	\$3.30	\$4.95	\$5.50
3.00 m	\$4.80	\$7.20	\$8.00
4.00 m	\$6.20	\$9.30	\$10.00

Fiona can cut pieces of wood to make more than one piece of the correct size, but she wants each of the shelves to be made of one complete piece of wood.

What is the cheapest total cost for which Fiona can make her shelves?

- A** \$21.15
- B** \$23.25
- C** \$23.55
- D** \$24.75
- E** \$25.50

- 31** A daily dose of chocolate could be the key to preventing Alzheimer's disease, according to recent research. Blood flow to the brain was boosted and memory improved among volunteers who drank two cups of hot chocolate a day over a thirty day period. They were tested for memory and thinking skills, and ultrasound measured the blood flow to the brain. Participants showed an average 8.3% improvement in blood flow and memory scores improved, with recall times falling from 167 to 116 seconds on average. The study suggests that drinking hot chocolate regularly could help keep the brain healthy.

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

- A** Eating chocolate would also have the same effect.
 - B** The sample size may have been too small to be significant.
 - C** The memory improvement would be permanent.
 - D** If regular amounts of chocolate are consumed over time, other health problems could arise.
 - E** Problems with general brain functioning are linked to the development of Alzheimer's disease.
- 32** There is an automatic photograph booth in my local shopping centre. It takes exactly 2 minutes from the time that the money is inserted for the photographs to be taken, then the developed photographs appear 4 minutes later.

Money may only be inserted when the green light is on. This light goes out immediately after money is inserted, and comes back on again exactly 3 minutes later.

This morning, I arrived at the booth just as it was being switched on, and I was sixth in the queue. The first person inserted their money immediately, and the rest of us all inserted our money as soon as we were allowed to.

How long after I arrived at the booth did I insert my money?

- A** 15 minutes
- B** 18 minutes
- C** 21 minutes
- D** 25 minutes
- E** 30 minutes

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