



# Scholarship Examination

## Sample Assessment Papers

Time Allowed: 1 hour

## PART 2B

### Instructions

Do not write on this question booklet.

This paper consists of multiple choice questions. Choose the **one** answer you consider correct and record your choice on the separate answer sheet.

Answer **all** questions in this part of the paper.

A calculator **can** be used.

You are advised to spend no more than 40 minutes on this part of the paper.

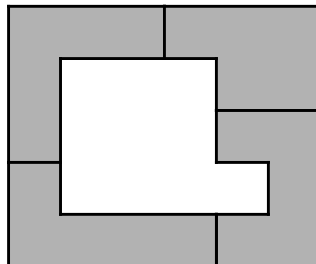
- 1 Different types of watches lose accuracy at different rates, as shown in the table below.

Type of watch	Seconds gained/lost per 24 hours		
	Worst	Typical	Best
Vintage mechanical	$\pm 60$	$\pm 15$	$\pm 5$
Modern mechanical	$\pm 10$	$\pm 5$	$\pm 2$
Modern quartz	$\pm 2$	$\pm 1$	$\pm 0.1$

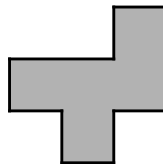
Marcello has one watch of each type. He synchronises them so that they all show exactly the same time.

What is the biggest difference there could be between the times shown on two of the watches after 24 hours?

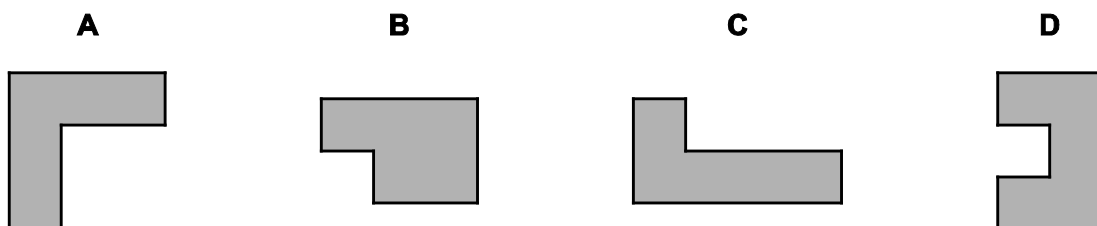
- A 10 seconds  
 B 20 seconds  
 C 50 seconds  
 D 70 seconds
- 2 A pentomino is a tile made up of 5 squares which are joined along their edges. Four pentominoes have been placed together in the pattern shown below.



Two more pentominoes are to be placed to fill the gap. One of them is a new shape, while the other is a repeat of one of the pentominoes already positioned. The new shape is shown below.



Which is the other pentomino that is to be placed in the gap?



- 3 Lucy lives in Lowtown. On Saturday she will visit her friend Martha who lives in Midtown, and she will arrive in time for lunch at 12:30.

Her journey will consist of a 10-minute walk to Lowtown station, then a train ride to Midtown station and finally a bus ride to Martha's house.

Trains leave Lowtown at 06:45 and then every 30 minutes until 21:15, taking 1 hour 20 minutes to reach Midtown.

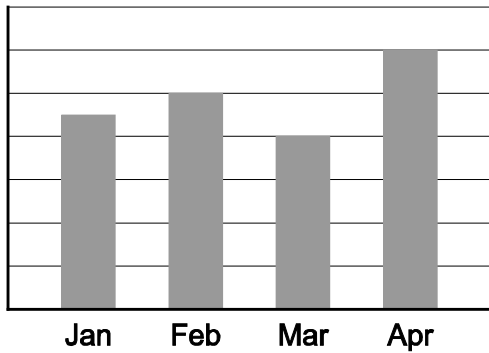
Buses leave Midtown at 08:00 and then every 20 minutes until 21:00, arriving at Martha's house 12 minutes later.

What is the latest time that Lucy can leave home so that she arrives at Martha's house in time for lunch?

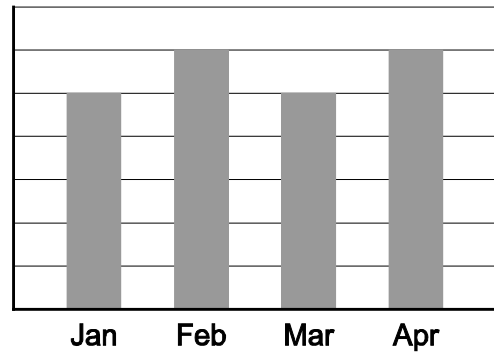
- A 10:05
- B 10:15
- C 10:35
- D 10:45

- 4 The price I pay for one unit of electricity is set for each month on the first day of that month. The charts below show, for the first four months of last year, the number of units of electricity I used each month and the price per unit of electricity that I had to pay for all the electricity I used in that month.

Electricity units used

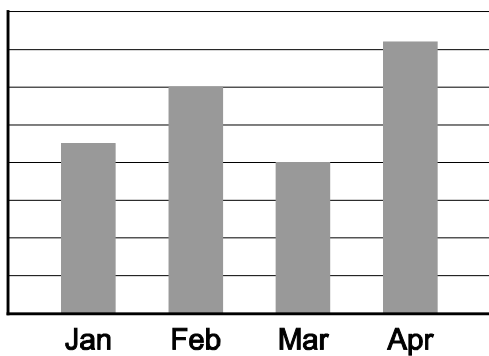


Price per unit of electricity

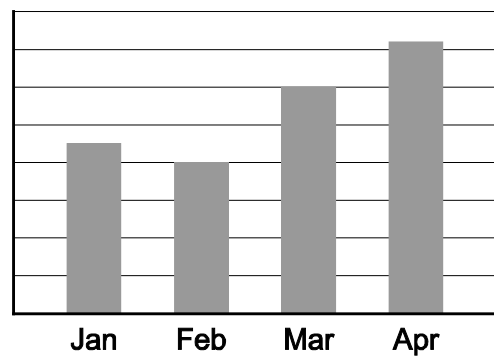


Which one of the following graphs, if suitably labelled, could represent the amount of money I paid for electricity during those months?

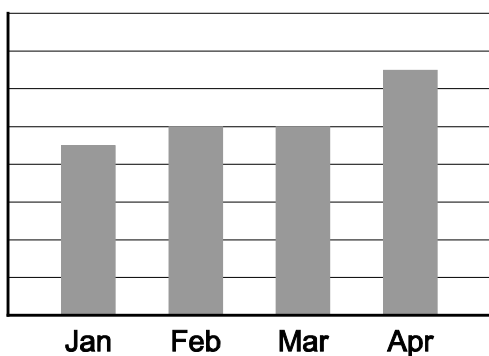
A



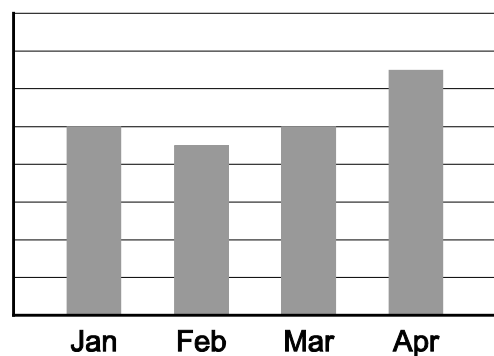
B



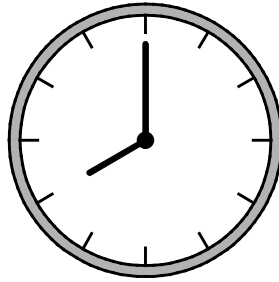
C



D



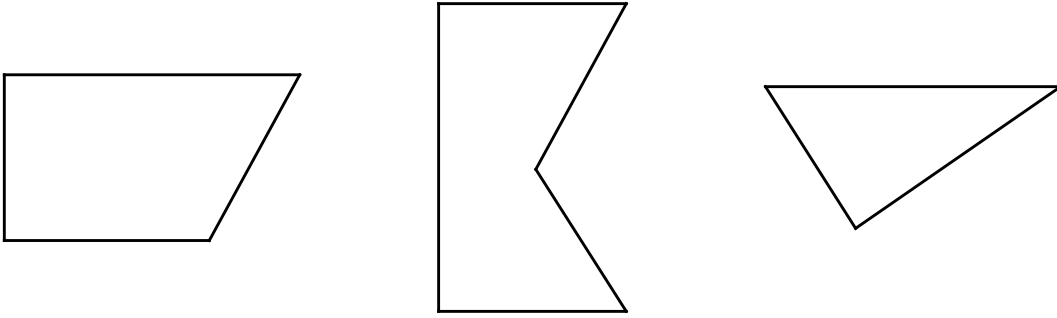
- 5 Fred was sponsored to stay awake for 24 hours, starting from 8 am. A friend advised him to focus on a single task to keep himself awake. He decided to focus on a clock to see how many times the hour and minute hands crossed.



How many times did the hour and minute hands cross during the 24-hour period?

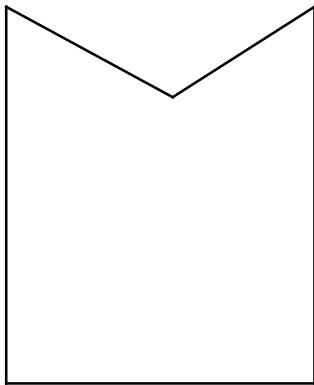
- A 22
- B 23
- C 24
- D 25

6 Daphne puts together the three pieces of card pictured below to make a shape.

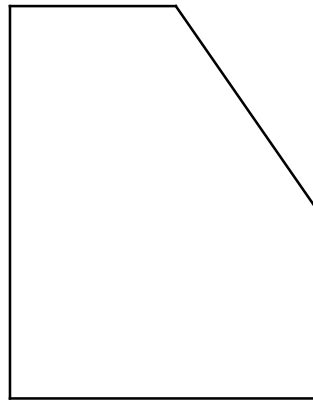


Which one of the following shapes could she make?

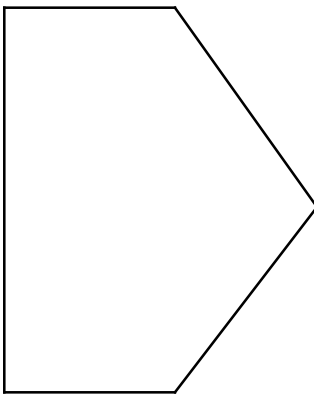
**A**



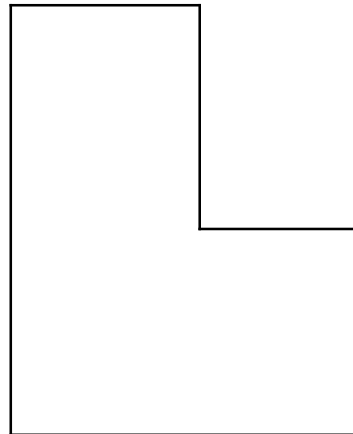
**B**



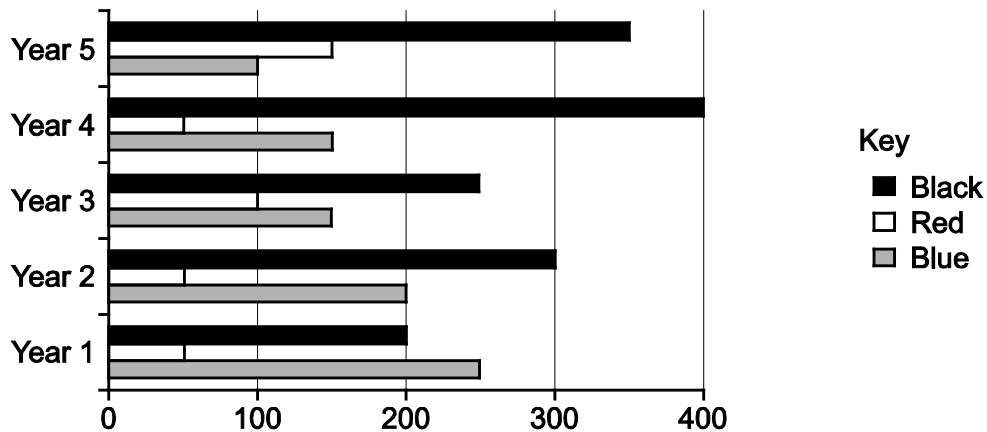
**C**



**D**



- 7 A large department store sells a particular type of shoe in three different colours: blue, red and black. The following graph shows the number of each colour of shoe sold in each of the last five years.



From this data for the last five years, which one of the following statements is **not** true?

- A 50% of the shoes sold in Year 1 were blue  
 B Over half of all the shoes sold were black  
 C The same number of shoes were sold in Year 1 as in Year 3  
 D Exactly twice as many blue shoes as red shoes were sold
- 8 For a children's activity holiday, all groups must have a minimum ratio of adults to children of 1:4. (More adults than this is acceptable, but not fewer.) The ratio of boys to girls must be between 1:2 and 2:1.

Four groups are currently composed as follows:

Group	Number of adults	Number of boys	Number of girls
1	3	5	6
2	4	9	4
3	5	8	13
4	6	13	7

Which single change would result in all four groups being acceptable?

- A Two boys move from group 2 to group 3  
 B Two boys move from group 3 to group 2  
 C Two girls move from group 2 to group 3  
 D Two girls move from group 3 to group 2

- 9 An ancient text mentions a circular pool as being 10 cubits in diameter and 30 cubits in circumference.

It has been suggested that this meant that at that time they thought that the ratio of the length of the circumference of a circle to its diameter was 3, but this may not be the reason.

The figures above are rounded to the nearest whole number, and we know that the circumference is always about 3.1416 times the diameter.

Which one of the following is the range of all values that the circumference could in fact have been?

- A 29.500 – 30.500 cubits  
 B 29.500 – 31.416 cubits  
 C 29.845 – 30.500 cubits  
 D 29.845 – 31.416 cubits
- 10 Jasmine's method of constructing computer passwords is to take a word of the required length and replace some or all of the letters in the word with numbers or symbols that she thinks resemble the letter. She is careful to distinguish between upper and lower case letters. The only letters she replaces are:

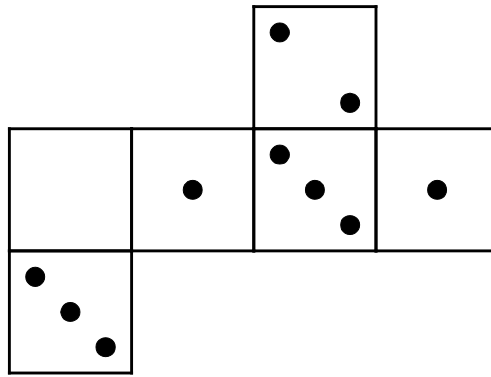
a	b	B	E	g	o	s	S	T	u	X	z
@	6	8	£	9	0	5	\$	7	"	%	2

Two of the passwords she could make from Jasmine are Ja5mine and J@5mine.

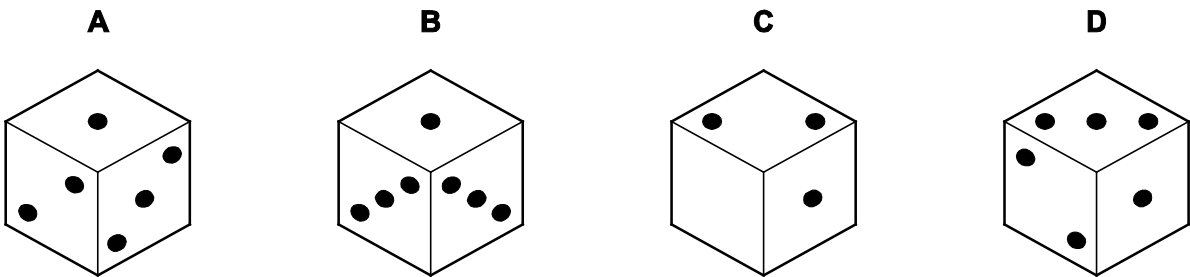
How many different passwords can she construct from the word Biogas?

- A 5  
 B 6  
 C 31  
 D 71

11 The diagram shows the net of a cube.



Which one of the following could be a view of the cube?



12 Abdul, Beckie, Cynthia and Douglas are making pancakes according to the recipe below.

To make 12 pancakes:

100g flour  
2 eggs  
300 ml milk

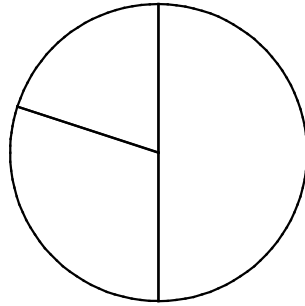
This table shows the amount of each ingredient that each person has.

	Abdul	Beckie	Cynthia	Douglas
Flour (g)	175	150	150	175
Eggs	4	3	4	3
Milk (ml)	500	400	600	550

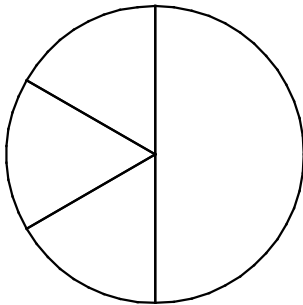
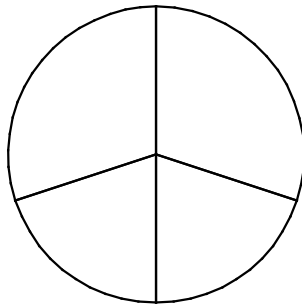
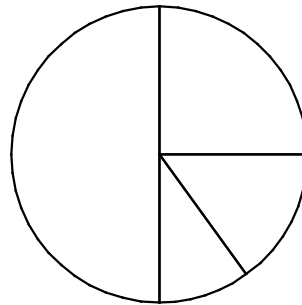
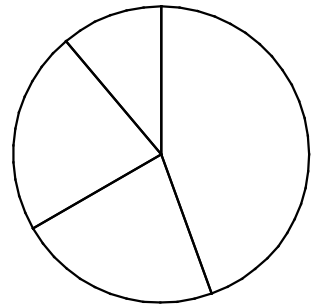
Which person can make the most pancakes?

- A Abdul
- B Beckie
- C Cynthia
- D Douglas

- 13 The number of times a website was visited for each of four periods of the day was recorded and a pie chart made of the data. Unfortunately, the figure for one of the periods was missing from the pie chart. The pie chart appeared as shown below.



Which of the following could represent the data for all four periods of the day?

**A****B****C****D**

- 14 A long distance runner is in training for a 10 km race and is gradually getting closer to his target speed. His recent times over 10 km have consistently decreased each week. His times for the last five weeks have been 58 m 20 s, 56 m 40 s, 55 m 00 s, 53 m 20 s and 51 m 40 s. It is assumed that his improvement will continue at the same rate.

With two more weeks of training remaining, how fast will he be likely to run in the actual race?

- A** 4 m 50 s per km
- B** 5 m 00 s per km
- C** 5 m 10 s per km
- D** 6 m 10 s per km

- 15 There is a regular bus service between Hometown and Jobtown; the fares are given in the table below.

<i>Type of journey</i>	<i>Fare</i>
Day return: Monday to Friday	\$5.00
Day return: Saturday and Sunday	\$4.00
Single: any day	\$2.80
5-Day Special: any number of journeys on 5 consecutive days starting on a Monday	\$22.60
28-Day Special: any number of journeys on any 28 consecutive days	\$115.00

Joanna lives in Hometown and works and shops in Jobtown. She works Monday to Friday and shops every Saturday. She travels by bus, except that a colleague gives her a lift home from work every Friday. Joanna also travels on the bus to visit a friend in Jobtown on every other Sunday. Joanna wants to keep her travel costs as low as possible.

How much will Joanna spend on bus fares during a period of four weeks?

- A \$112.00
- B \$114.40
- C \$115.00
- D \$115.20