Candidates answer on the Question Paper.

OCR supplied materials:
None

Other materials required:
• Scientific or graphical calculator
• Geometrical instruments
• Tracing paper (optional)

Duration: 1 hour 30 minutes

INSTRUCTIONS TO CANDIDATES
• Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
• Use black ink. HB pencil may be used for graphs and diagrams only.
• Answer all the questions.
• Read each question carefully. Make sure you know what you have to do before starting your answer.
• Your answers should be supported with appropriate working. Marks may be given for a correct method even if the answer is incorrect.
• Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
• Do not write in the bar codes.

INFORMATION FOR CANDIDATES
• The number of marks is given in brackets [ ] at the end of each question or part question.
• Your quality of written communication is assessed in questions marked with an asterisk (*).
• Use the π button on your calculator or take π to be 3.142 unless the question says otherwise.
• The total number of marks for this paper is 100.
• This document consists of 20 pages. Any blank pages are indicated.

You are permitted to use a calculator for this paper.

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Turn over
Area of trapezium = \( \frac{1}{2} (a + b)h \)

Volume of prism = (area of cross-section) \times length
1 Here is a coordinate grid.

(a) Write down the coordinates of point A.

(a) (.......................... , ..........................) [1]

(b) Plot the point (0, -1). Label this point C.

(c) AC is a diagonal of the square ABCD.

Draw the square ABCD.
Write down the coordinates of the points B and D.

(c) (.......................... , ..........................)

(.......................... , ..........................) [3]
2 (a) Write down the reading shown on each of these scales.

(i) ![Litres Scale]

(a)(i) .................................................. litres [1]

(ii) ![Kilograms Scale]

(ii) .................................................. kg [1]

(iii) ![Temperature Scale]

(iii) .................................................. °C [1]

(b) Complete each sentence by writing the most appropriate *metric* unit.

(i) The height of a tree is 12 ......................... [1]

(ii) A bucket holds 10 ......................... of water. [1]

(iii) The distance between London and Paris is 341 ......................... [1]
3 These shapes are drawn on a one-centimetre square grid.

(a) Complete the following.

The area of shape A is .......... cm\(^2\) and the area of shape B is .......... cm\(^2\).

Shape .......... has the bigger area by .......... cm\(^2\). \[3\]

(b) Work out the perimeter of shape B.

(b) .................................................... cm \[1\]
In golf, a ball is placed on a tee before being hit. Jackson is playing golf and has only the following tees in his bag.

- 10 orange tees
- 1 red tee
- 5 white tees
- 4 yellow tees

(a) Jackson chooses a tee at random from his bag.
Choose from the words below to complete each sentence.

certain    likely    impossible    evens    unlikely

It is ...................................... that he chooses a red tee.

It is ...................................... that he does not choose a white tee.

It is ...................................... that he chooses a pink tee.

(b) April has 10 tees in her bag. Her tees are also only orange, red, white or yellow. She chooses a tee at random.

• It is evens that she chooses a red tee.
• It is more likely that she chooses a yellow tee than a white tee.
• It is unlikely that she chooses an orange tee.

Write down a possible number of tees of each of the colours that she has in her bag.

(b) orange ....................................................
red ....................................................
white ....................................................
yellow ....................................................
The table shows the times that Amanda was at work one week.

<table>
<thead>
<tr>
<th></th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start time</td>
<td>0800</td>
<td>0815</td>
<td>0800</td>
<td>0830</td>
<td>0745</td>
</tr>
<tr>
<td>Finish time</td>
<td>1630</td>
<td>..........</td>
<td>1630</td>
<td>1550</td>
<td>..........</td>
</tr>
<tr>
<td>Time at work</td>
<td>8 hours 30 minutes</td>
<td>8 hours 10 minutes</td>
<td>8 hours 30 minutes</td>
<td>.......... hours</td>
<td>6 hours 50 minutes</td>
</tr>
</tbody>
</table>

(a) Complete the table. [3]

(b) How long did Amanda spend at work altogether that week? [2]

6 Simplify.

(a) $9 \times y \times 2$

(b) $4x + 8x - x$

(c) $\frac{8p}{2}$

(d) $3a + 2b - 2a - 5b$
7 (a) Samantha has only these 8 coins in her purse.

[Image of coins]

Samantha chooses a coin at random from her purse.
Which arrow shows the probability that she chooses

(i) a 50p coin,

(a)(i) Arrow .......................................................... [1]

(ii) a 20p coin,

(ii) Arrow .......................................................... [1]

(iii) a coin with a value of less than £1?

(iii) Arrow .......................................................... [1]

(b) Samantha buys a magazine and pays with a £5 note.
She receives 8 coins in change and puts these in her purse with the other 8 coins.
She still has only 10p, 20p and 50p coins in her purse.
If she now chooses a coin at random from her purse, the probability of choosing a 50p coin
is 0.5.

Work out a possible cost for the magazine.

(b) £ .......................................................... [3]
8 (a) Calculate.

(i) \( \frac{5}{6} - \frac{2}{5} \)
Give your answer as a fraction.

(a)(i) .......................................................... [1]

(ii) \( 1.8^2 + \sqrt{2.3} \)
Give your answer correct to one decimal place.

(ii) .......................................................... [2]

(iii) \( 3.2 \text{ km} - 176 \text{ m} \)
Give the units with your answer.

(iii) .......................................................... [2]

(b) Complete this calculation.
Give the final answer as a fraction in its simplest form.

\[
\frac{2}{9} \div \frac{1}{3} = \frac{\boxed{\phantom{0} \phantom{0}}}{9} \times \boxed{\phantom{0}}
\]

= \boxed{\phantom{0}}

[3]
9 Solve.

(a) \( x + 7 = 3 \)

(b) \( 7x = 45.5 \)

(c) \( \frac{x}{3} = 15 \)

(d) \( 16 = 4x - 3 \)

(a) ................................................................ [1]

(b) ................................................................ [1]

(c) ................................................................ [1]

(d) ................................................................ [2]

10 Seven cupcakes cost £8.47.

Calculate the cost of ten of these cupcakes.

£ ................................................................ [3]
A fair four-sided dice with faces numbered 1, 2, 3 and 4 is rolled.

(a) What is the probability of it landing on

(i) 3,

(a)(i) .......................................................... [1]

(ii) a square number?

(ii) .......................................................... [1]

(b) The four-sided dice is rolled 60 times. How many times might you expect it to land on 3?

(b) .......................................................... [2]

12 (a) Ian took part in a charity walk. He started at 6 pm and finished at 6 am. For every 5 minutes Ian walked, he covered 400 m. For 10 minutes in every hour he stopped for a rest. How many kilometres did Ian walk in the 12 hours?

(a) ....................................................... km [4]

(b) Convert your answer to part (a) to miles.

(b) ....................................................... miles [1]
13  The circumference of the circular London Eye is 424 m.

Calculate the diameter of the circle.
Give your answer correct to the nearest metre.

...................................................... m [3]
The costs of one litre of each of two types of fuel are shown below.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel</td>
<td>Unleaded petrol</td>
</tr>
<tr>
<td>£1.40</td>
<td>£1.32</td>
</tr>
</tbody>
</table>

(a) Alan buys 35 litres of diesel every week.

How much does he spend on diesel in one year?

(a) £ .......................................................... [3]

(b)* Daniel’s car uses diesel.

The diesel to drive 550 miles costs £68.95.

Maja’s car uses unleaded petrol.

The petrol to drive 460 miles costs £60.06.

Whose car has the greater fuel economy, in miles per litre? [6]
15 (a) Joe goes for a ride on his motorbike.

The graph below represents his journey.

Write a sentence to describe each part of Joe’s journey.

The first has been done for you.

A to B – Joe sets off from home and then travels at a slow speed.

B to C – ....................................................................................................................................

C to D – ....................................................................................................................................

D to E – .................................................................................................................................... [3]

(b) On one part of his journey Joe travels for $\frac{3}{4}$ hr at an average speed of 28 km/h.

Calculate how far he travels in this part of his journey.

(b) .............................................................. km [2]
16 Four friends go tenpin bowling.  
They each pay for 3 games.  
Each person pays £1.99 for the hire of shoes.  
The total cost is £60.76.  

Work out the cost each person pays for one game.

£ .......................................................... [3]

17 A dice is biased.  
The table shows the probability of obtaining each of the scores on the dice.

<table>
<thead>
<tr>
<th>Score</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probability</td>
<td>x</td>
<td>2x</td>
<td>3x</td>
<td>4x</td>
<td>5x</td>
<td>6x</td>
</tr>
</tbody>
</table>

Work out the probability of throwing the dice and scoring 3.  
Give your answer as a fraction in its simplest form.  

........................................................... [3]
A closed, empty box is a cuboid.

(a) On the grid below, complete the net of the box.

The base and two of the sides have been drawn.

Use a scale of 1 cm to represent 10 cm.
(b) Work out the total area of the card used to make the full size box.

\[ \text{ cm}^2 \] [3]

(c) The empty box is filled with small boxes which are all cubes of edge 5 cm.

(i) Calculate the volume of one of these small boxes.

\[ \text{ cm}^3 \] [2]

(ii) How many of these small boxes are needed to fill the large box?

\[ \] [3]
Georgina stops at a petrol station to put petrol in her car.
The gauge on the car shows that the petrol tank is \( \frac{1}{4} \) full.
Georgina puts 42 litres of petrol into the tank.
The gauge now shows the petrol tank is \( \frac{5}{6} \) full.

How many litres of petrol would be in the tank when it is full?

\[
\text{.................................................. litres [3]} \]

END OF QUESTION PAPER
PLEASE DO NOT WRITE ON THIS PAGE