

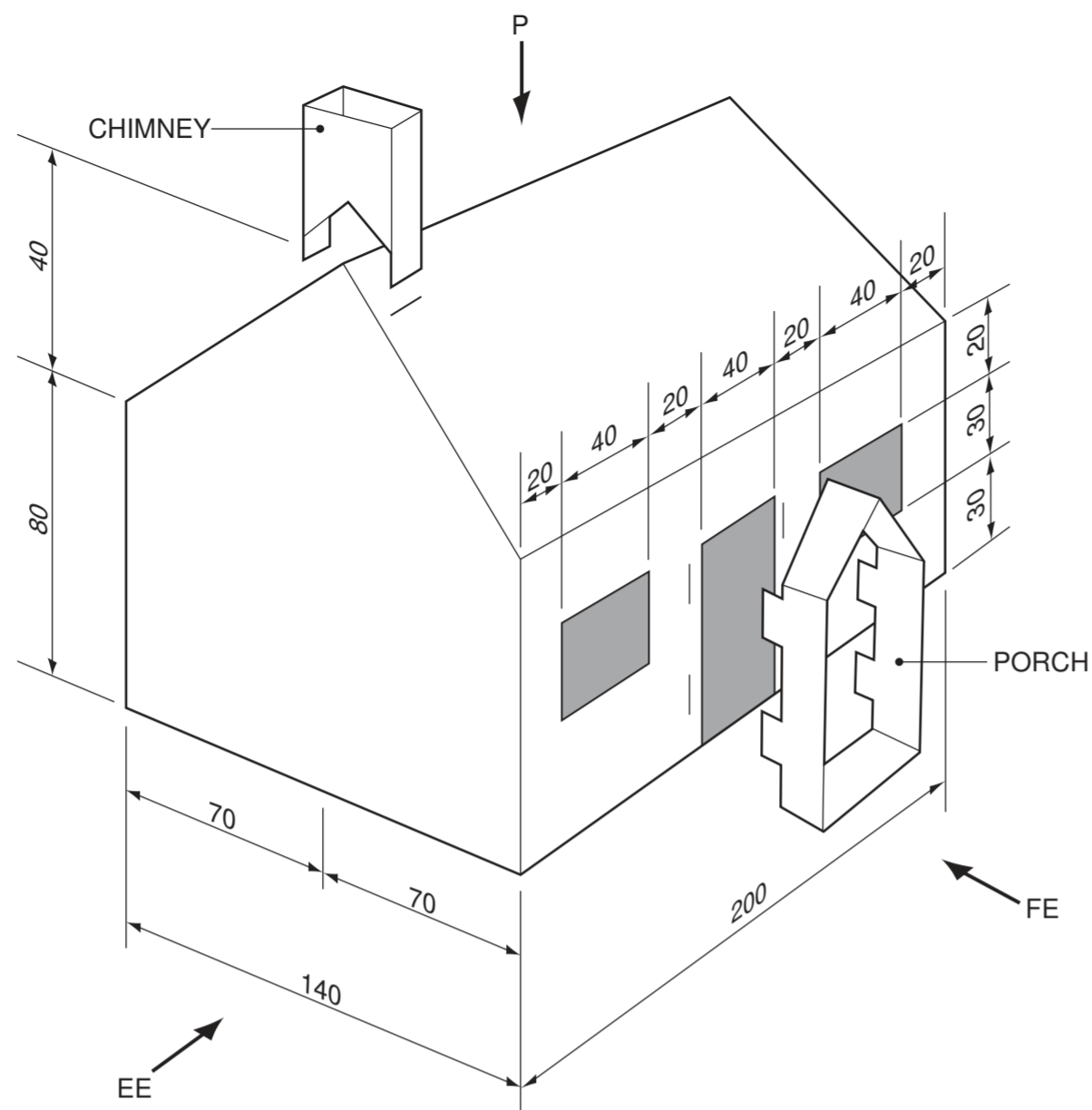
Question 1

A sketch of a model bungalow made from card is shown on the right. The bungalow is one of a series of buildings that is to be used with a model railway layout. The bungalow has a detachable chimney and porch.

(a) In the space below draw to a scale of 1:2 the following orthographic views of the fully assembled bungalow:

- (i) a front elevation in the direction of FE;
- (ii) an end elevation in the direction of EE;
- (iii) a plan in the direction of P.

Estimate the sizes of the chimney and porch. Include the windows and door on the front elevation. [18]



(b) Draw to a scale of 1:2 on the given base line the development (net) of the bungalow. Include sufficient glue tabs to join the bungalow together and the slots required to hold the porch and chimney in place. Do not include the surface detail (windows and door) on your drawing. [10]

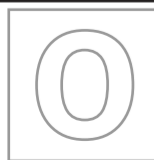


(c) In the space below sketch the development (net) of the chimney. Include any tabs that are required to hold the chimney together and in position on the bungalow. [3]

(d) In the space below sketch the development (net) of the porch. Include any tabs that are required to hold the porch together and in position on the bungalow. [3]

[Turn over

* 1 2 8 3 2 9 1 6 4 6 *



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

7048/01

October/November 2007

2 hours 30 minutes
plus 15 minutes reading time

CDT: DESIGN AND COMMUNICATION
Paper 1

No Additional Materials are required
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IB07 11_7048_01/3RP

SHEET 1 OF 2 (SECTION 1)

Print your surname, other names, Centre number and candidate number in the spaces provided.

Answer **one** question only from Section 1 (Questions 1 and 2).

Answer **two** questions only from Section 2 (Questions 3 to 6).

Answer the questions in the spaces provided.

All construction and projection lines must be clearly shown in Section 2.

All dimensions are in millimetres unless otherwise stated.

The number of marks is given in brackets [] at the end of each question or part question.

DO NOT WRITE IN ANY BARCODES.

Candidate's Surname

Other Names

Centre Number

Candidate's Number

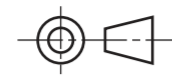
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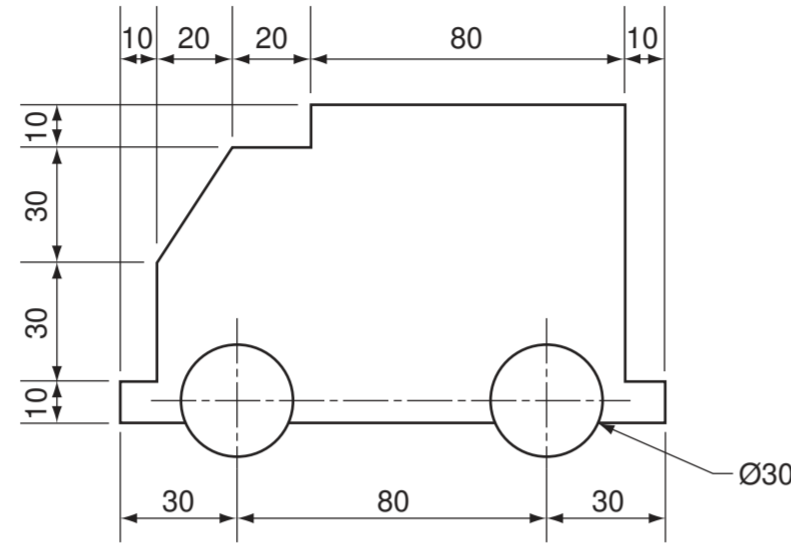
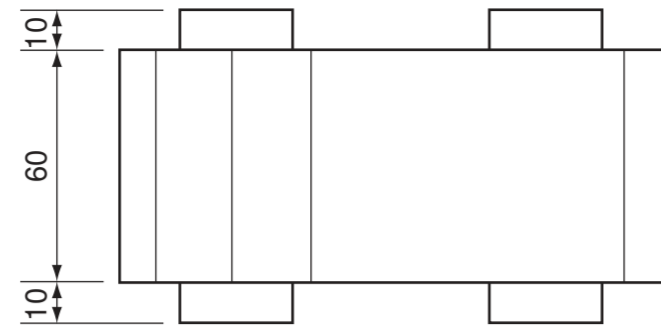
Question 2

Orthographic views of a plastic toy lorry are shown on the right. Specification points for the toy are:

- body made from a one piece plastic moulding;
- wheels made from injection moulded plastic;
- two metal axles pass through the body of the lorry and the wheels are pushed onto the ends.



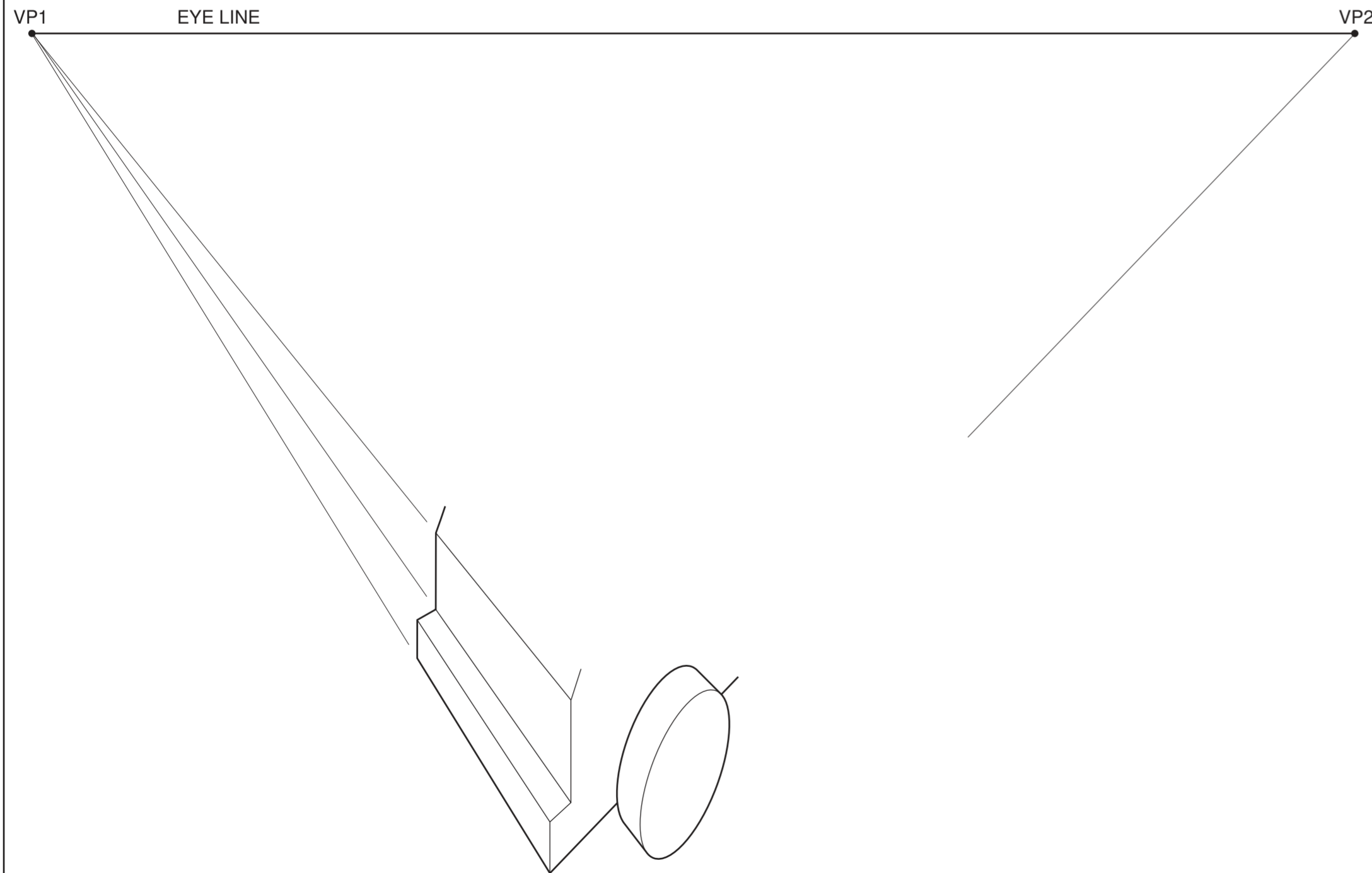
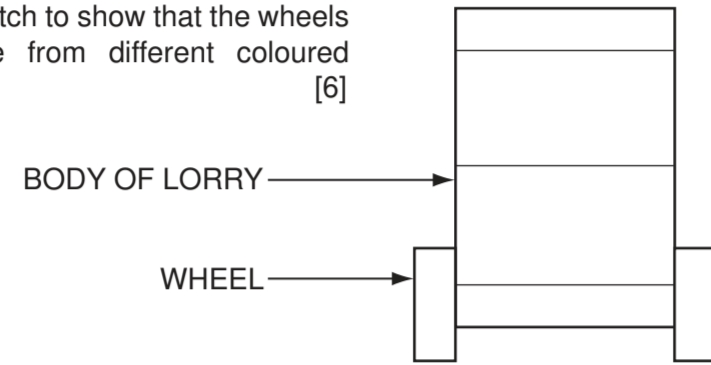
SCALE 1:2



(a) A pictorial illustration of the lorry is required.

(i) Complete the estimated two point perspective sketch of the lorry in the space below. The eye line and two vanishing points are given. [10]

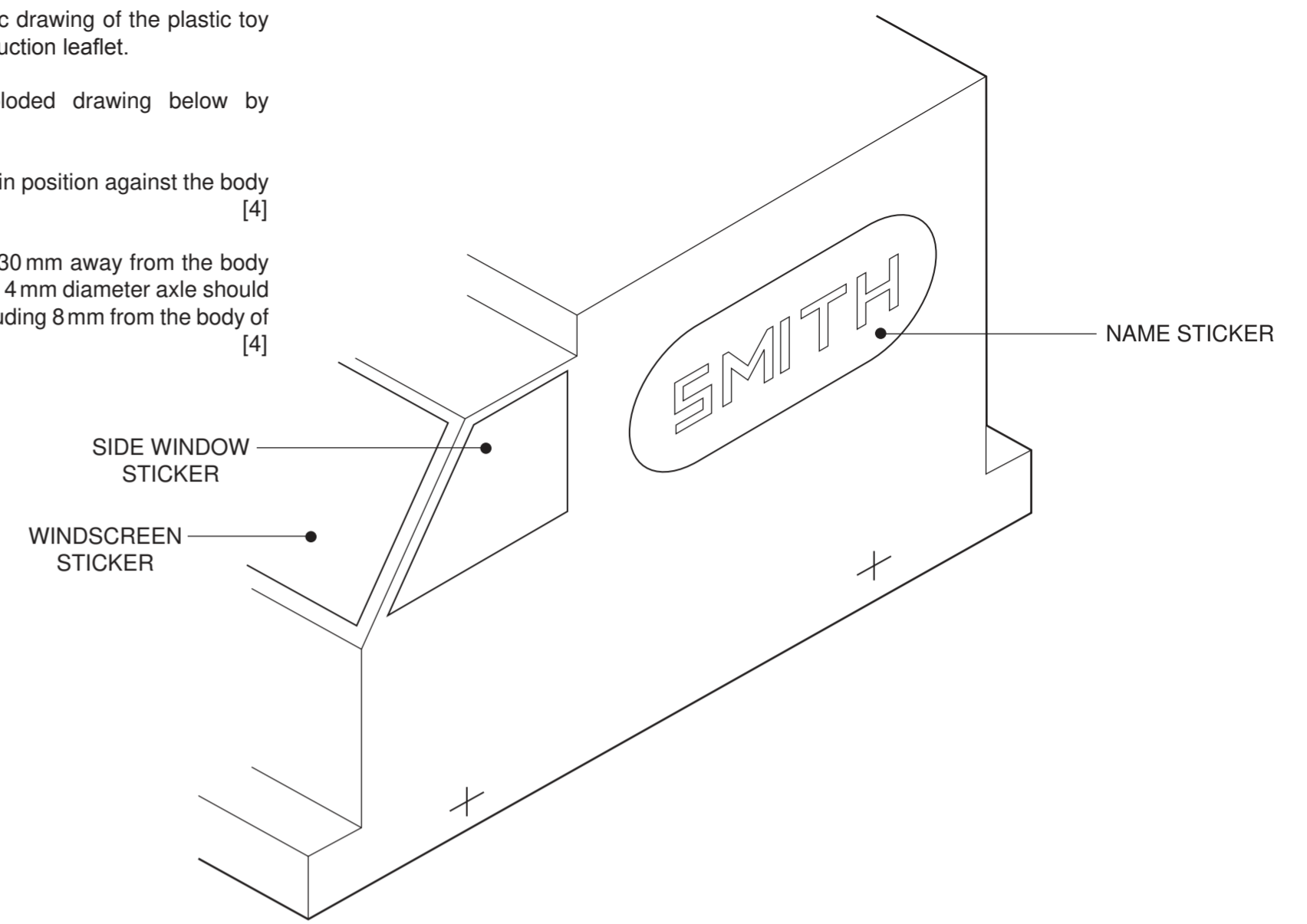
(ii) Add colour to your sketch to show that the wheels and body are made from different coloured plastic. [6]



A full size exploded isometric drawing of the plastic toy lorry is to be used in an instruction leaflet.

(b) Complete the exploded drawing below by adding:

- the front wheel in position against the body of the lorry; [4]
- the rear wheel 30 mm away from the body of the lorry. The 4 mm diameter axle should be shown protruding 8 mm from the body of the lorry. [4]

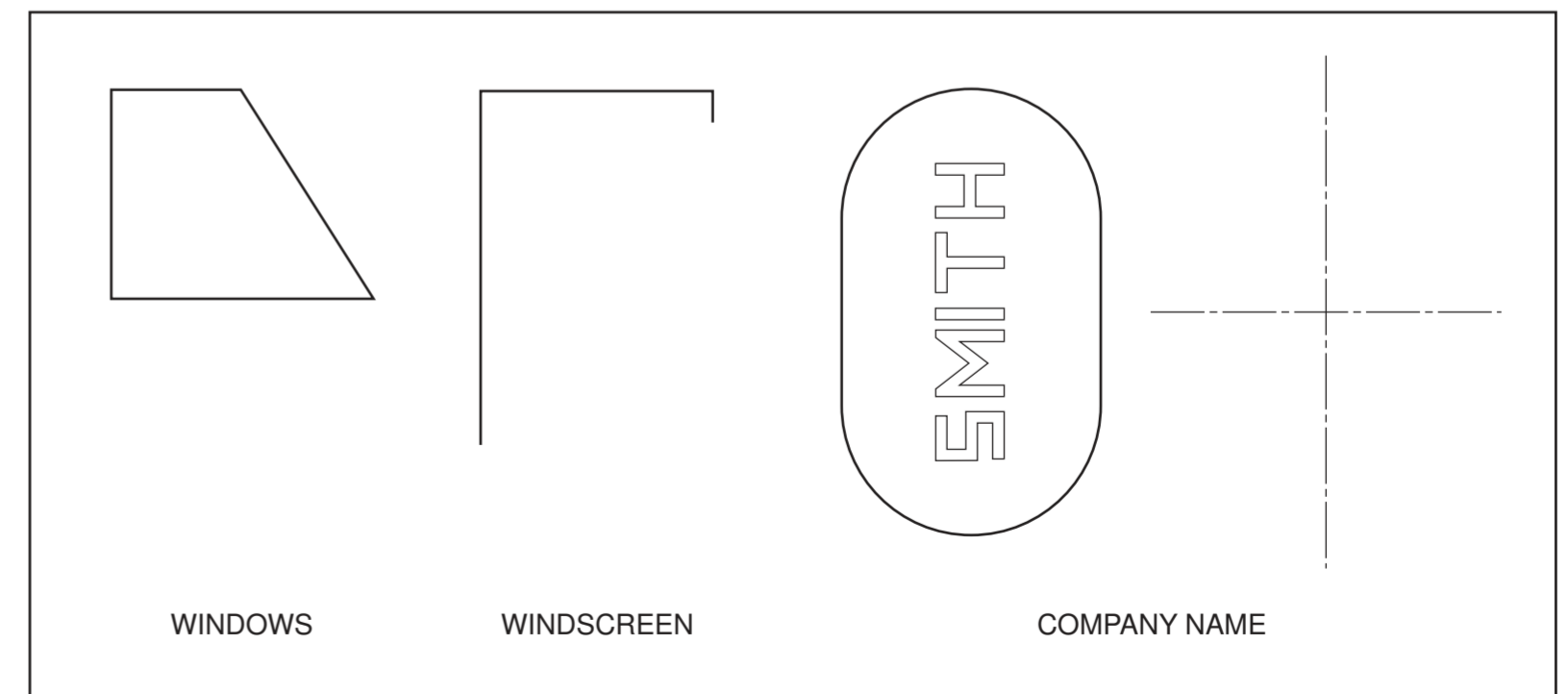


(c) The lorry is to be decorated with five stickers that are to be printed on a single sheet of self-adhesive vinyl. The position of three of these stickers is shown in the exploded isometric drawing above.

The five stickers are used to show the two side windows, the windscreen of the cab and a company name on each side of the model. Complete the drawing of the sheet of stickers by:

- adding the second side window; [3]
- completing the windscreen; [2]
- adding the second name sticker. [5]

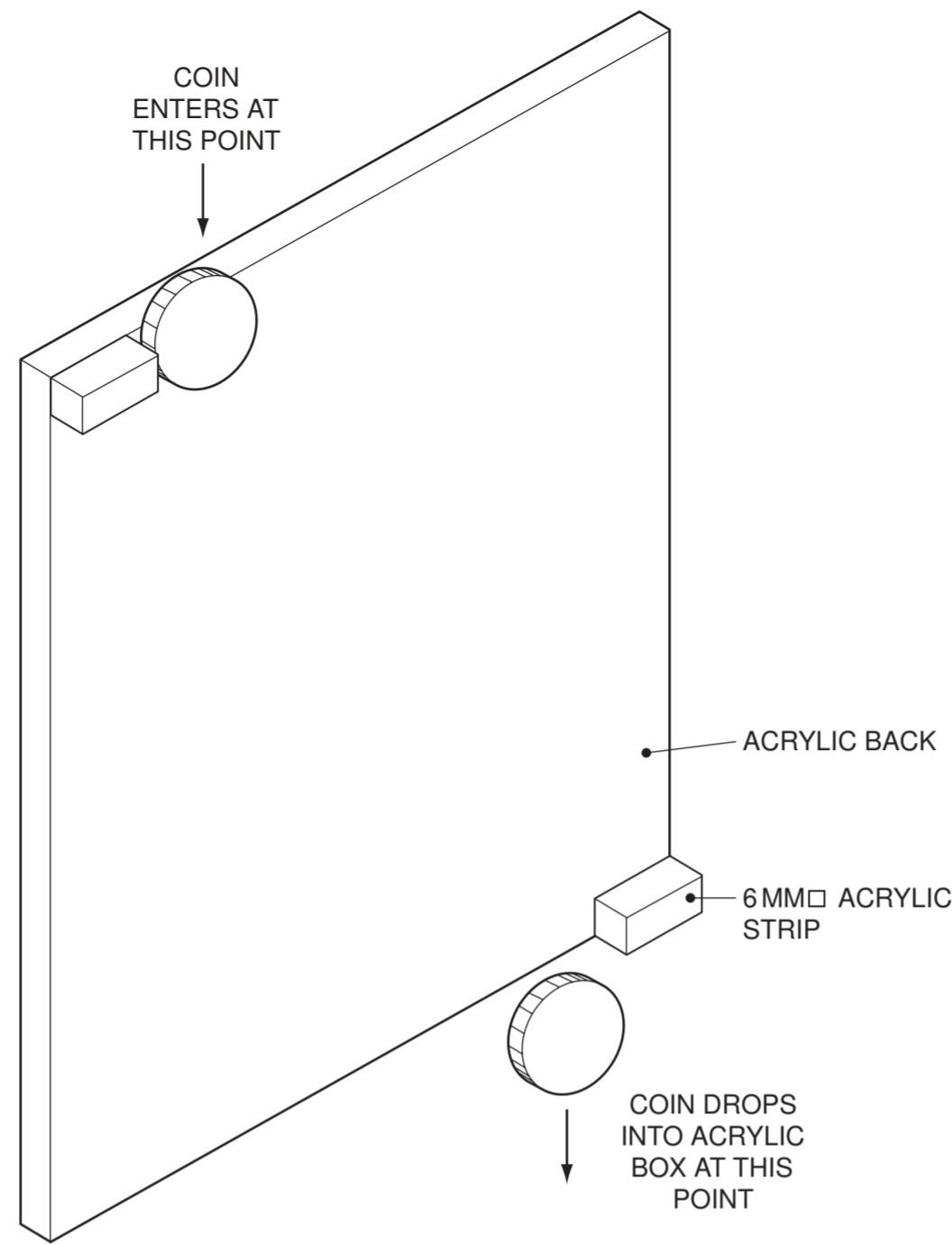
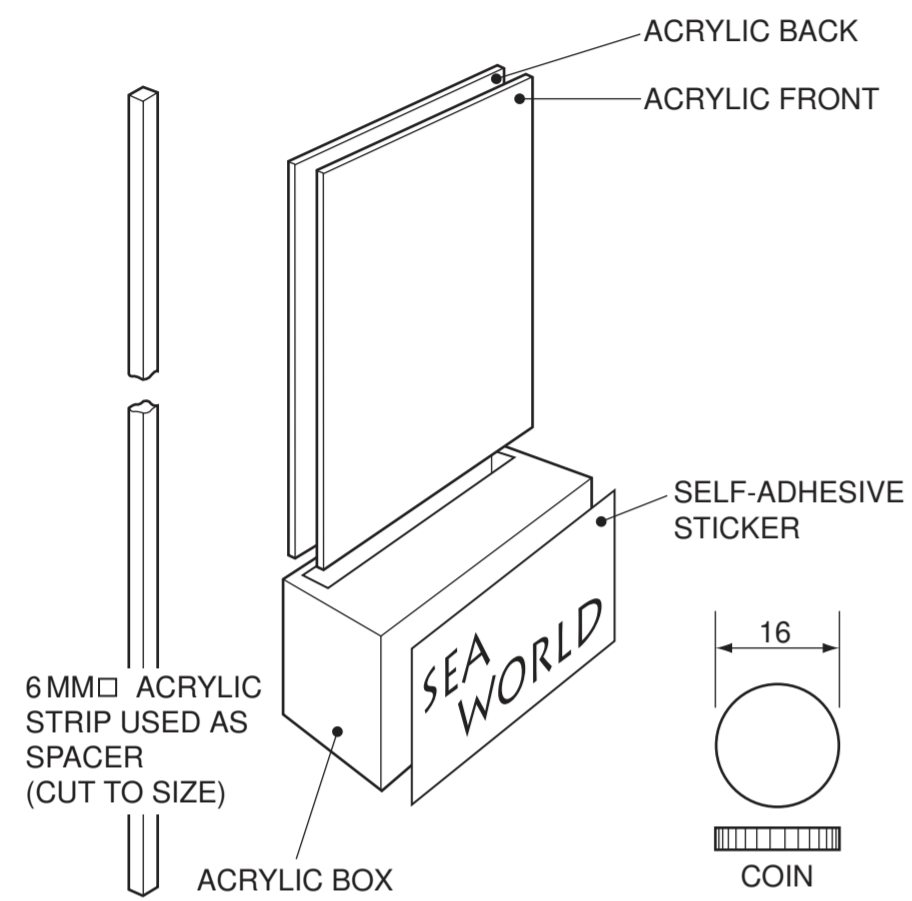
Use the orthographic views of the plastic toy lorry to determine the sizes of the stickers.



Question 3

A sketch of a money box based upon the theme 'Sea World' is shown below. The box is made from clear acrylic sheet and has a self-adhesive sticker applied to enhance the appearance. The coins are dropped in the top and roll down into the box. A full size drawing of a coin is also shown below.

- (a) A full size drawing of the back of the money box is shown on the right. Add acrylic strips to this drawing to show the path of the coin as it rolls from the top left corner to the bottom right corner. The path of the coin should be as long as possible. [8]



- (b) In the space below show a mechanism for an alternative design that will make a disc rotate as the coin drops between the two acrylic sheets. [10]

- (c) In the space below use sketches and notes to develop design ideas for the sticker to go onto the money box. Your designs should be based upon the theme 'Sea World'. [9]

- (d) In the box below draw your chosen design for the sticker. [6]



STICKER

Question 4

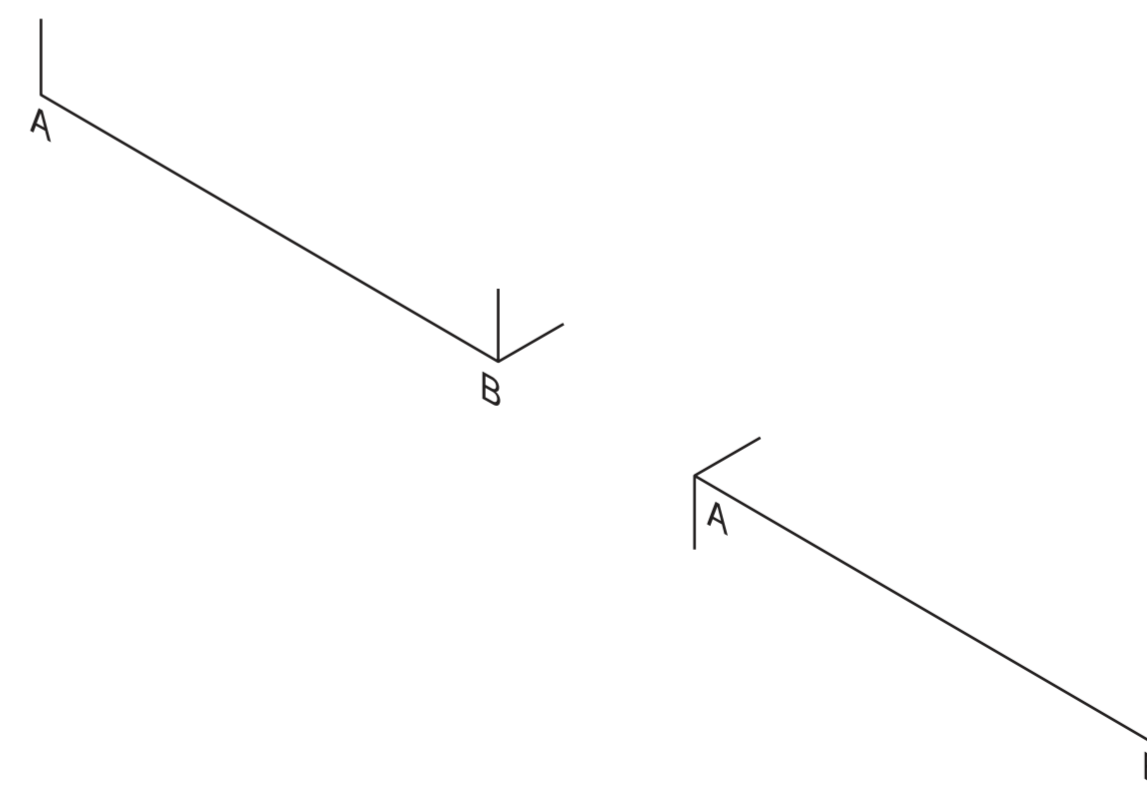
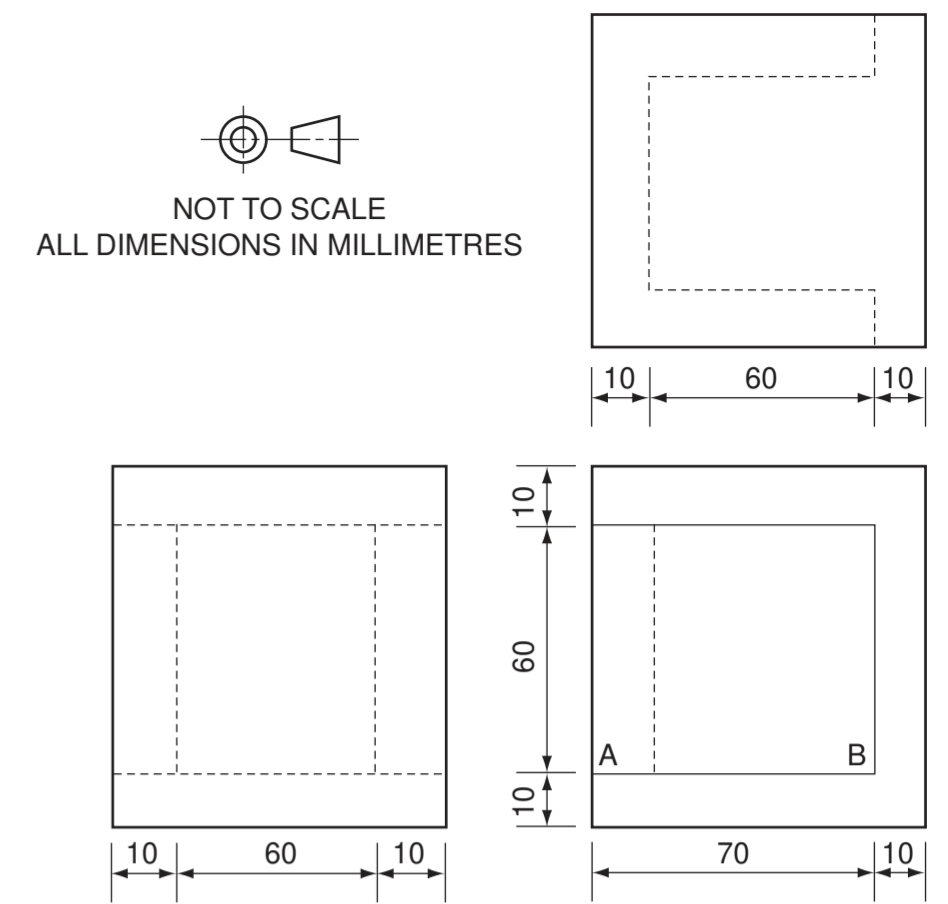
Orthographic views of a wooden building block are shown on the right. The block is made from two parts that slot together.

- (a) In the space below complete the **oblique** sketches of each part of the wooden building block. Line A-B is given as a starting point for each part of the wooden building block. [9]



- (b) Complete the full size exploded **isometric** drawing of the wooden building blocks in the space below. Line A-B is given as a starting point for each part of the wooden building block. [18]

- (c) Add colour to the exploded isometric drawings to make them look like wood. [6]



[Turn over]

SHEET 2 OF 2 (SECTION 2)

Print your surname, other names, Centre number and candidate number in the spaces provided.
Answer **one** question only from Section 1 (Questions 1 and 2).
Answer **two** questions only from Section 2 (Questions 3 to 6).
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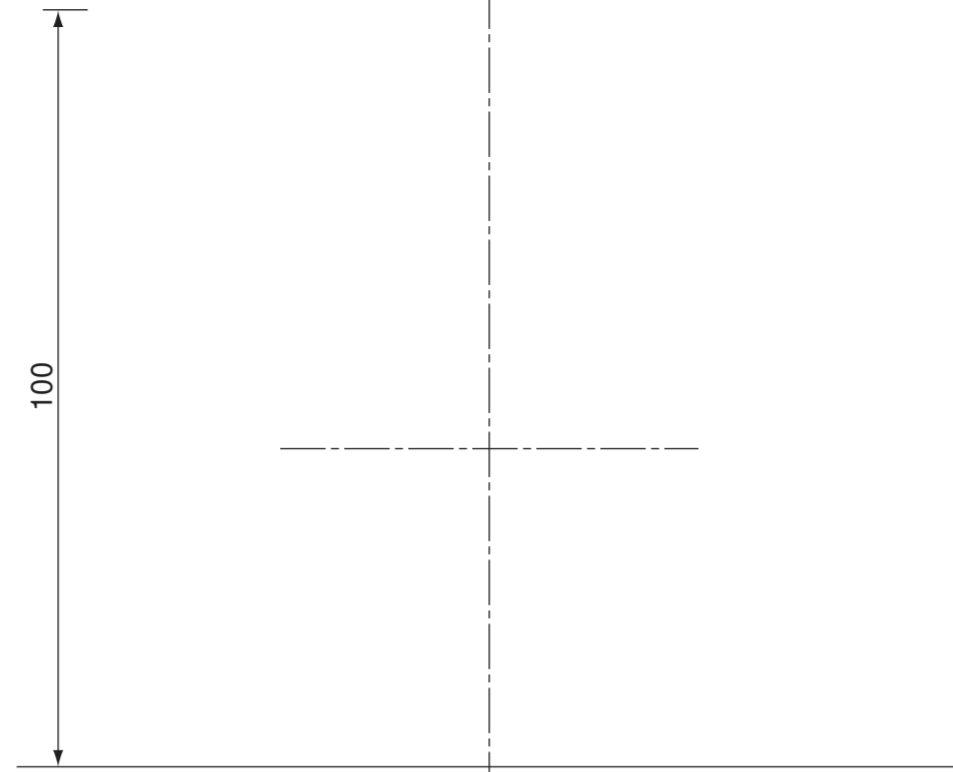
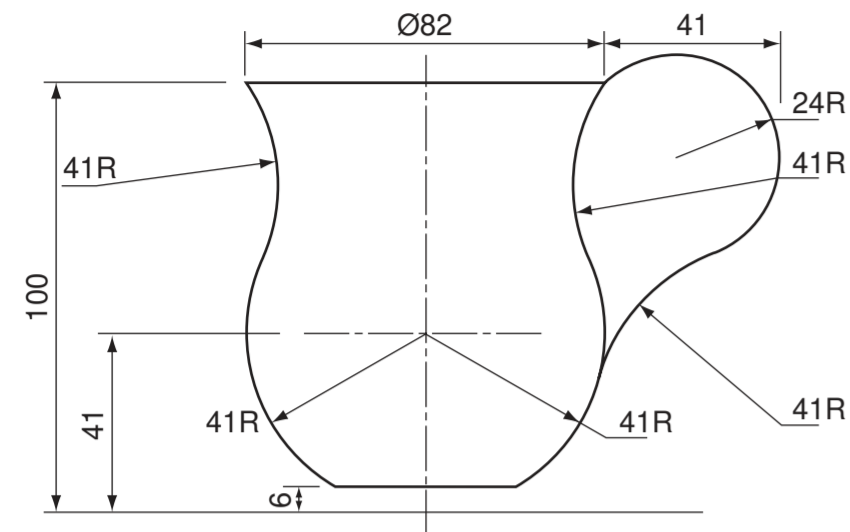
Candidate's Surname
Other Names
Centre Number
Candidate's Number

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Question 5

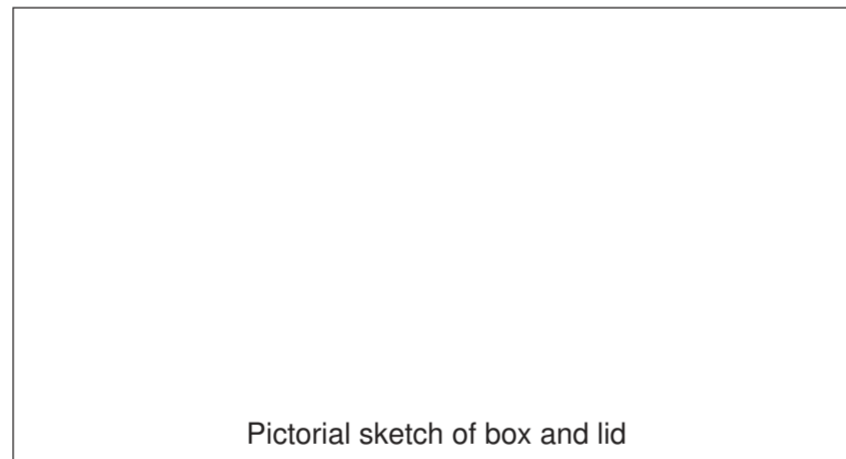
The profile of a Commemorative Cup is shown below.

- (a) On the given centre line and in the given position to the right, draw the outline of the Commemorative Cup full size. Your drawing must clearly show the construction used to determine the positions of the centres of the arcs. [15]



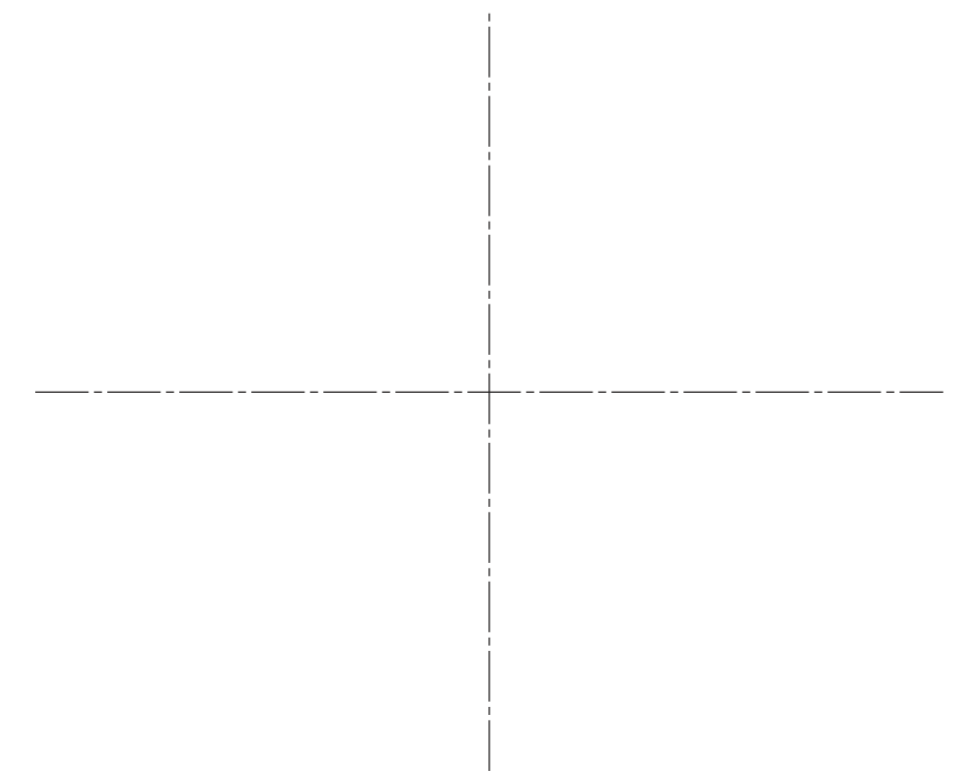
The Commemorative Cup is to be packaged in a hexagonal card box with an opening lid.

- (b) Draw full size on the given centre lines to the right:
- (i) an 82 mm diameter circle to represent the top rim of the cup;
 - (ii) a hexagon to represent the plan view of the box that fits around the 82 mm diameter circle (ignore the thickness of the card);
 - (iii) the handle protruding from the centre of one side of the hexagonal card box. The handle is 41 mm in length and 5 mm in thickness. [6]



- (c) In the space on the right sketch a pictorial view of the top of the box with the card lid in the open position. Include any fold flaps required to keep the lid closed. Do not include the Commemorative Cup in your sketch. [6]

- (d) A window is cut out of one side of the package for the Commemorative Cup. The window is in the shape of an ellipse. The major axis is vertical and is 80 mm long. The minor axis is 44 mm in length. Draw the ellipse full size on the given centre lines. [6]



Question 6

The sales figures for a range of toys are shown in the table on the right. These are to be included in a graphical form in an annual report on sales.

Sales Figures

	2002	2003	2004	2005	2006
Duck	3000	3500	2500	2000	4000
Lorry	9000	12 000	14 000	20 000	24 000
Rocket	4500	5000	6000	7000	6500
Puzzle	12 000	13 500	14 800	13 200	15 600
Money Box	7500	8000	9000	9800	9400

- (a) In the space below draw a pie chart to show the distribution of the total sales for 2002. Use colour and suitable labels to enhance your illustration. [5]

- (b) In the space below draw a suitable two dimensional chart to show the rise in the sales of the lorry from 2002 to 2006. Use colour and suitable labels to enhance your illustration. [5]

- (c) The 2006 sales figures are to be shown in the annual report. Illustrate in a three dimensional way:
- the type of products sold;
 - the number of each product sold.

Idea sketches

- (i) In the space on the right use sketches and notes to show your ideas for the illustration. [8]
- (ii) In the space below draw out your chosen design accurately. Use colour and suitable labels to enhance your illustration. [15]