



*Junior Certificate Examination, 2010*

***Technical Graphics***  
***Higher Level***  
***Section B***  
*(280 marks)*

***Monday, 21 June***  
***Morning 9:30 - 12:30***

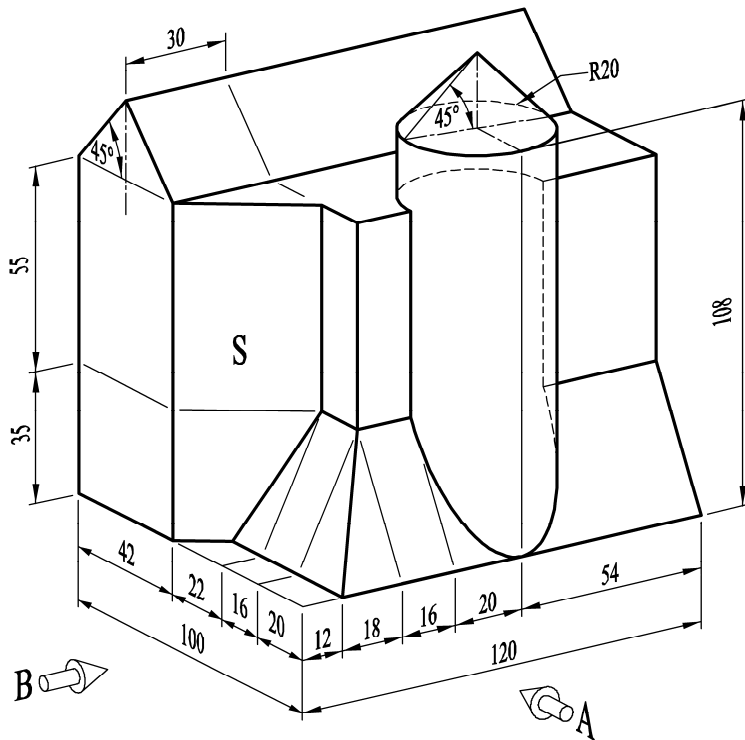
***Instructions***

- (a) Answer **any four** questions.*
- (b) All questions in this section carry equal marks.*
- (c) The number of the question must be distinctly marked by the side of each answer.*
- (d) Work on **one side** of the answer paper only.*
- (e) Write your examination number on each sheet of paper used.*

**SECTION B.** Answer **any four** questions. All questions carry equal marks.

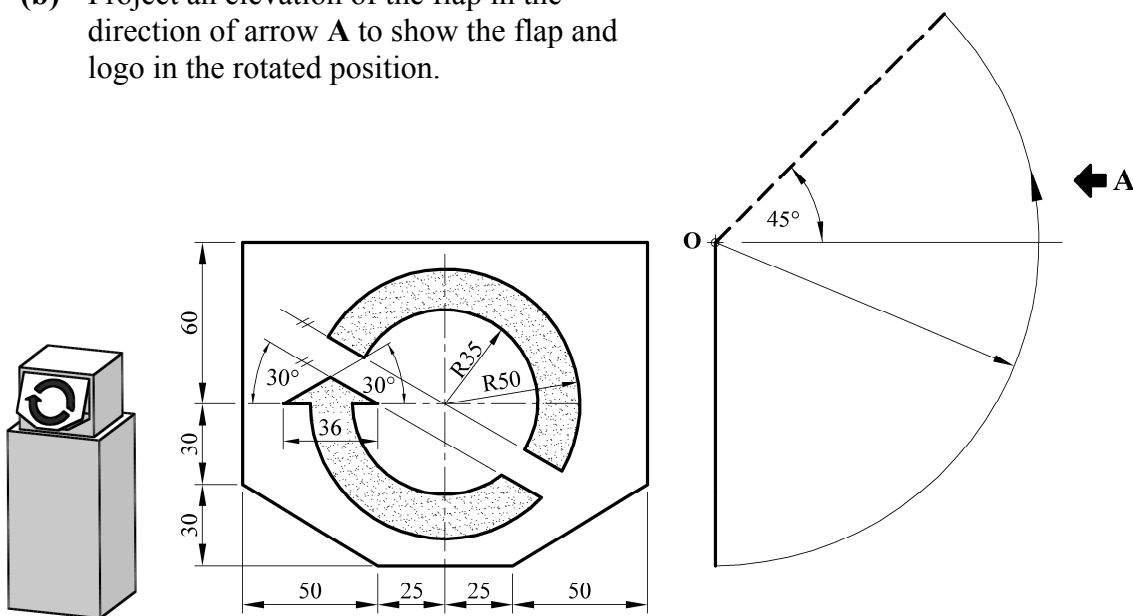
**1** A pictorial view of a model of a castle is shown.

- (a) Draw an elevation in the direction of arrow A.
- (b) Project a plan from the elevation.
- (c) Project an end view in the direction of arrow B.
- (d) Determine the true shape of surface S.



**2** The figure shows the elevation and end view of a flap for a waste paper bin. The flap is transparent and shows a recycling logo. A 3D graphic of the bin is also shown. The flap is rotated about point O, as shown by the broken line in the end view.

- (a) Draw the given elevation and end view.
- (b) Project an elevation of the flap in the direction of arrow A to show the flap and logo in the rotated position.

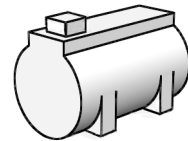
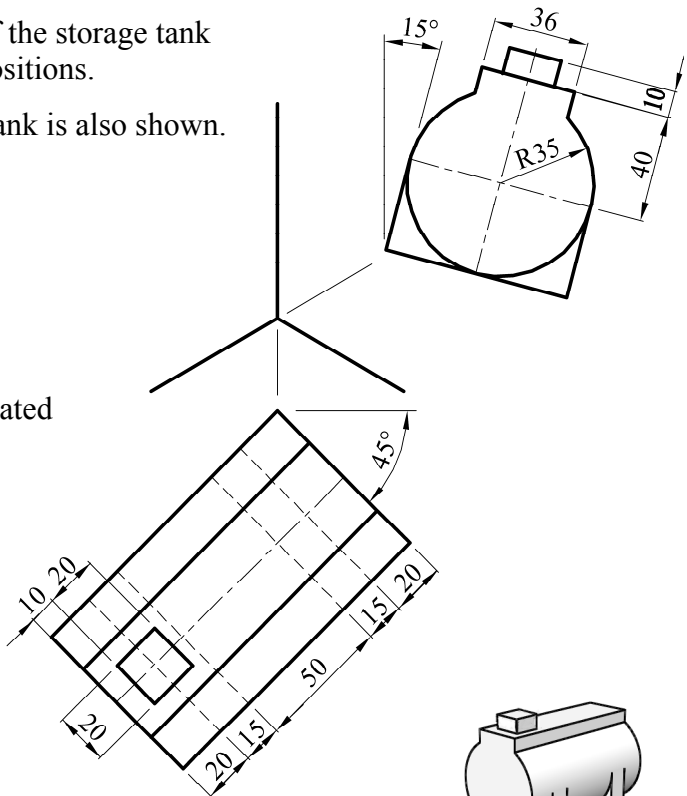


**3** The axonometric axes required for the isometric projection of a rainwater storage tank are shown.

The plan and end elevation of the storage tank are shown in their required positions.

A 3D graphic of the storage tank is also shown.

- (a)**
- (i) Draw the axonometric axes as shown.
  - (ii) Draw the plan orientated at  $45^\circ$  as shown.
  - (iii) Draw the end elevation orientated at  $15^\circ$  as shown.
  - (iv) Draw the completed axonometric projection of the storage tank.

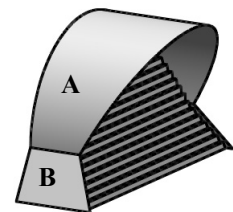
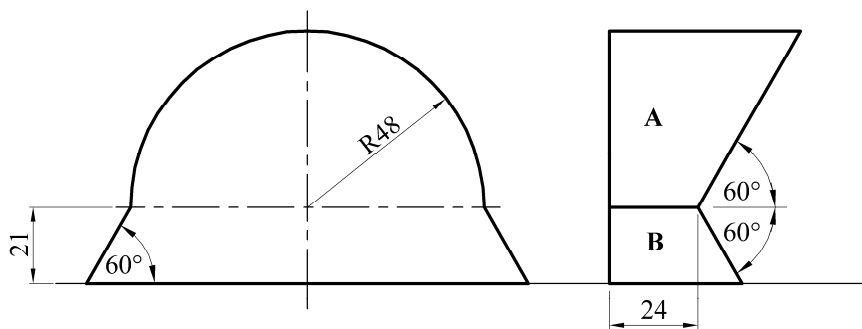


**OR**

- (b)** Draw the completed isometric projection of the storage tank using the isometric scale method.

**4** The figure shows the elevation and end view of a design for a covered stand for a sports stadium. A 3D graphic of the stand is also shown.

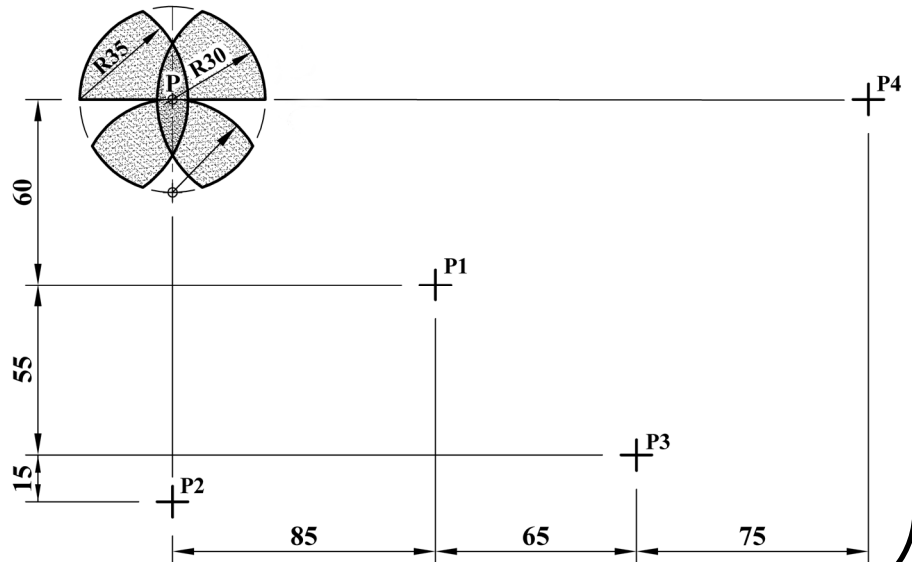
- (a)** Draw the given elevation and end view of the stand.
- (b)** Project a plan from the elevation.
- (c)** Draw the development of the curved surface **A**.
- (d)** Draw the development of the sloping surface **B**.



**5** The figure shows the logo for a butterfly farm.  
The figure is subject to transformations in the following order:

- Axial Symmetry
- Translation
- Central Symmetry
- Rotation anti-clockwise through  $120^\circ$ .

**P1, P2, P3 and P4** show the positions of point **P** under each of these transformations.



- (a) Draw the given figure.
- (b) Determine the image of the figure under **each** of these transformations.

**6** The figure shows the design of a logo for a sailing club.

The curve **AB** is a parabola with the vertex at **A**.

The curve **CDG** is a semi-ellipse with focal points at **F<sub>1</sub>** and **F<sub>2</sub>**.

Determine the major and minor axes and draw the semi-ellipse **CDG**.

The line **EH** is a tangent to the semi-ellipse **CDG** at **E**.

The curve **LM** is an identical portion of the semi-ellipse **CDG**.

Complete the given design showing clearly how to locate the point **M**.

