*Pre-Junior Certificate Examination, 2015*

# *Technical Graphics*
# *Higher Level*
# *Section B*

*(280 marks)*

## *Time : 3 Hours*

***Instructions***

*(a)* ***Any four*** *questions to be answered.*

*(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 paper only.*

*(e)* *Write your name, your school's name and your teacher's name on each sheet of paper used.*

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

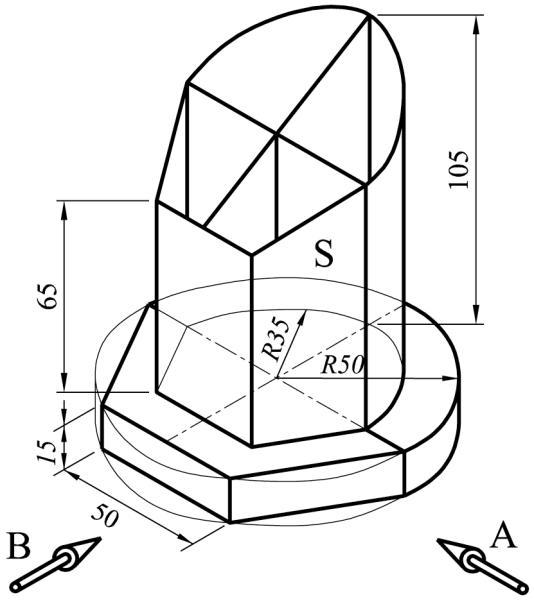
**1.** A pictorial view of a desk tidy is shown. The base is in the form of a semi-circle and semi-hexagon.

**(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 the surface **S**.

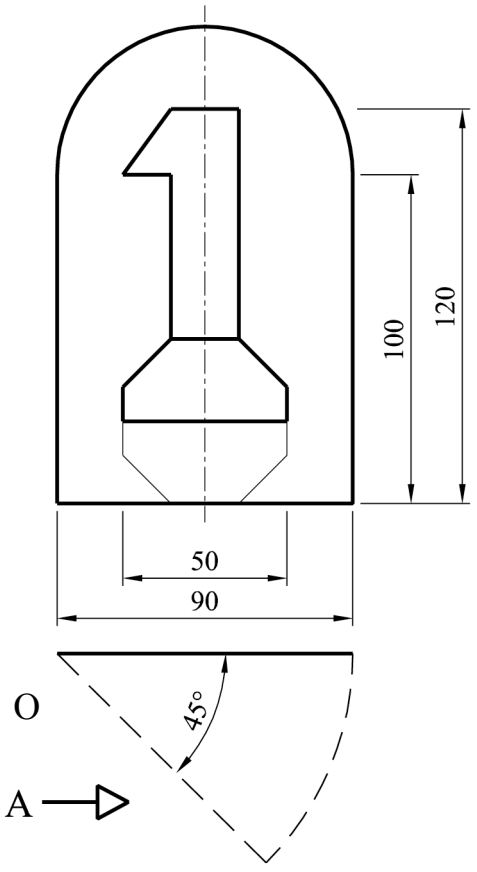



**2.** The elevation and plan of a 1st birthday card are shown. The design of the number 1 is based on an octagon as shown.

**(a)** Draw the given elevation and plan showing clearly how to draw the number 1.

The card is rotated through 45º about the point **O** as shown by the broken line in plan.

**(b)** Project an end view of the birthday card in the direction of the arrow **A** to show the card in the rotated position.



**3.** The axonometric axes required for the isometric projection of a bread bin are shown.

**(a)**

(i) Draw the axonometric axes as shown.

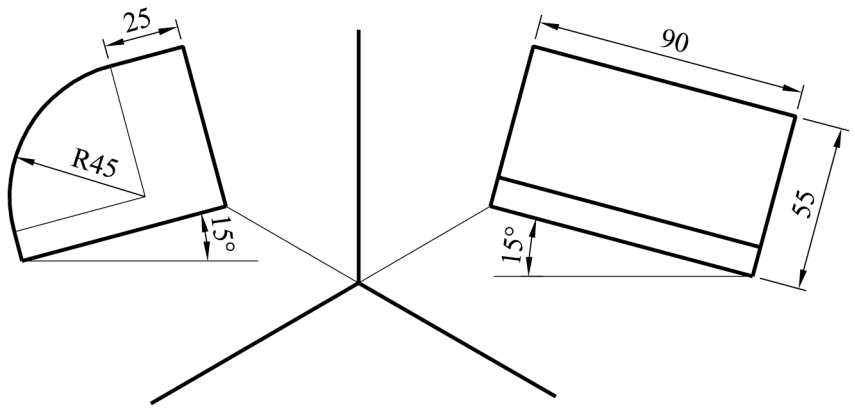
(ii) Draw the given elevation inclined at 15° as shown.

(iii) Draw the given end elevation inclined at 15° as shown.

(iv) Draw the completed axonometric projection of the bread bin.

**OR**

**(b)** Draw the isometric projection of the bread bin using the isometric scale method.



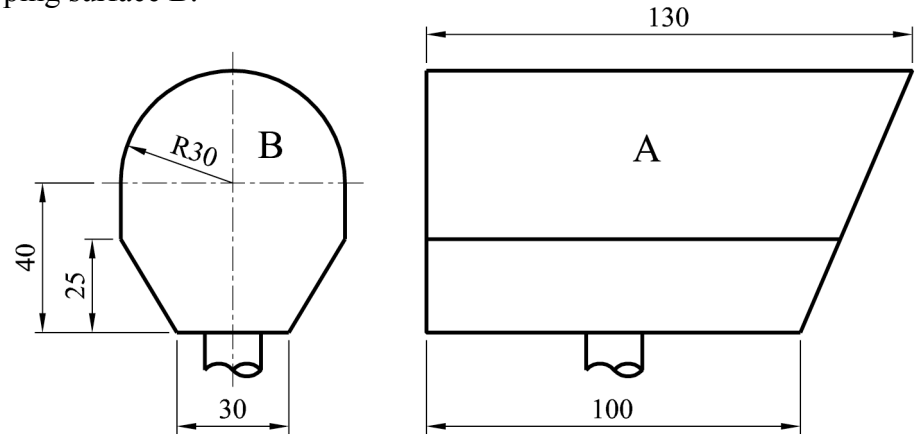

**4.** The elevation and end view of a design for an American style post box are shown.

**(a)** Draw the given elevation and end view as shown.
*The post/leg of the post box is not required.*

**(b)** Project a plan from the elevation.

**(c)** Draw the development of the curved surface **A**.

**(d)** Draw the development of sloping surface **B**.



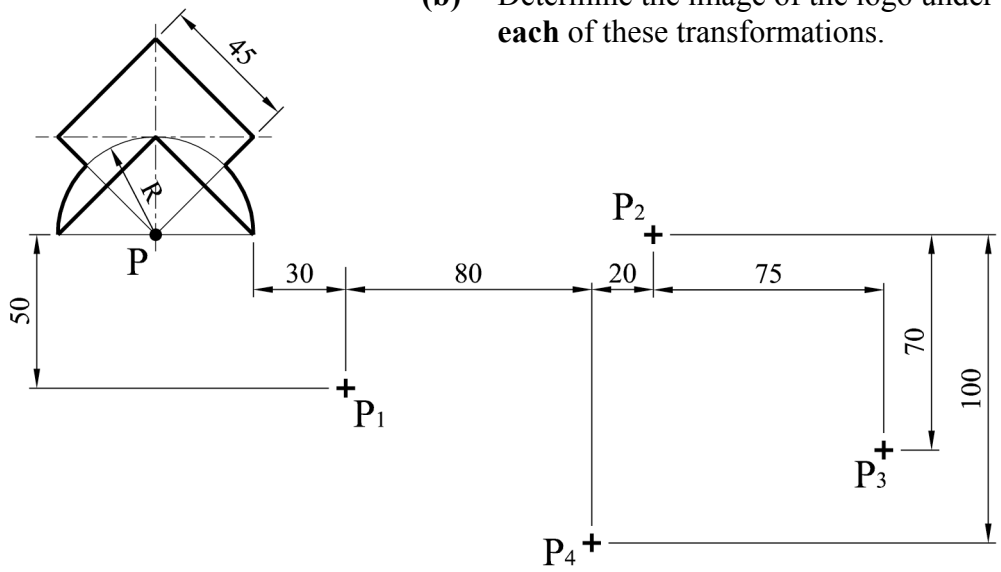
**5.** The figure shows the logo for a gliding club.
The logo is subject to transformations in the following order:

- Central Symmetry
- Axial Symmetry
- Translation
- Rotation clockwise through 120°.

**$P_1$**, **$P_2$**, **$P_3$** and **$P_4$** show the positions of point **P** under each of these transformations.

**(a)** Draw the given figure.

**(b)** Determine the image of the logo under **each** of these transformations.




**6.** The figure shows a design for a Halloween costume logo.

The curve **ABCD** is an ellipse with focal points **F** and **$F_1$**.

The curves **EL** and **LG** are parabolic with vertices at **E** and **G**, respectively.

Tangents to the ellipse are drawn at **H** and **K** and the curve **GJE** is a portion of an arc of a circle.

Draw the given design showing clearly all construction.