Ref. No. **Ex/PROD/ES/B/T/214/2025**

B.E. PRODUCTION ENGINEERING, SECOND YEAR, FIRST SEMESTER
EXAM 2025
PROJECTION AND SPATIAL GRAPHICS

Time : Three hours **Full Marks 100**

(Draw the diagram/s neatly and correctly with proper and appropriate drawing instrument/s. Provide all dimension as per engineering drawing norm)

1. A distance of 1cm on a machine parts has to be represented by a line 3 cm on the drawing. What is it RF value? Draw a **diagonal scale** showing divisions of 0.01 cm and capable of measuring upto 5 cm. Mark a distance of 3.64 cm and 3.02 cm on the scale. (CO1) **12**

2. Draw the three orthographic view (**Third Angle Projection**) of the object shown in **Fig.1** taking front view from the arrow side with proper dimension, scale and angle of projection. (CO2) **15**

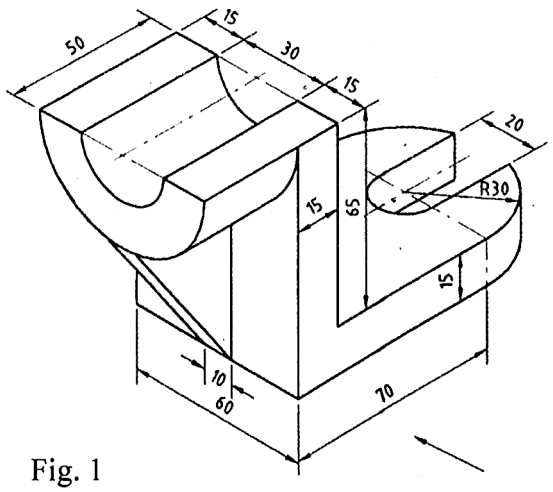

Fig. 1

3. Draw the Isometric view with proper dimension of the following object (Fig.2). (CO2) **18**

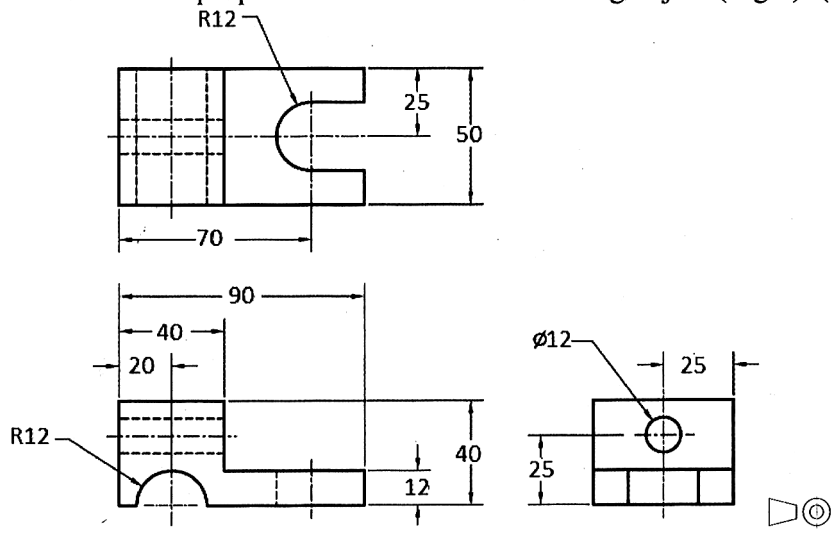

Fig. 2

[Turn over

Ref. No. **Ex/PROD/ES/B/T/214/2025**

B.E. PRODUCTION ENGINEERING, SECOND YEAR, FIRST SEMESTER
EXAM 2025
PROJECTION AND SPATIAL GRAPHICS

Time : Three hours **Full Marks 100**

4. Find out the true shape and area of the triangle ABC **graphically**. The co-ordinates of the points are as follows: A(10,-20,30), B(20,-50,-60) and C(60,30,40). (CO3) **15**

5. A **right regular pentagonal prism**, edge of base 20mm and height 50mm, is held in space such that its axis is inclined at 60° to HP and 30° to VP. It rests on one of its base corner on AHP. Draw its front and top views when the nearest corner is 12mm in front of the VP and the remotest top edge is 80mm above the HP. Draw in **1st angle projection using Rotation of Object Method**. **20**

Must draw the right regular pentagon with proper geometric construction method with circum-circle (do not erase the construction line/s). (CO4)

OR

A **right regular pentagonal prism**, side of base 25 mm and height 65 mm, rests on an edge of its base on HP, such that the rectangular face containing the base edge is inclined to the HP at 30°. A section plane perpendicular to the HP and inclined to the VP at 45° cuts the prism such that the long edge farthest away from the VP is bisected. Draw the top view, sectional front view and true shape of the section of the cut prism. Draw in **1st angle projection using Rotation of Object Method**. **20**

Must draw the right regular pentagon with proper geometric construction method with circum-circle (do not erase the construction line/s). (CO4)

6. A **SQUARE PRISM**, edge of base 35mm and height 70mm, resting on its base in HP, with a face inclined at 30° to VP, is completely penetrated by another square prism, edge of base 26mm and 100 mm long, having its faces equally inclined to the VP. The axes of the two prisms are parallel to the VP and bisect each other at right angles. Draw the projections of the solids showing lines of intersection. **15+5**

Also develop the lateral surface development of the penetrating prism (any one side). (CO5)