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## COMBINED FIRST AND SECOND SEMESTER B.TECH. ENGINEERING DEGREE [14 SCHEME] EXAMINATION, APRIL 2015

EN 14 108 (B) ENGINEERING GRAPHICS (B)

Time: Three Hours

Maximum: 100 Marks

Answer **three** questions from Part A and any **two** questions from Part B.

All questions carry equal marks.

## Part A

 (a) A line PQ is inclined at 30° to VP, and its ends are 15 mm. and 40 mm. above HP. Its front view measures 60 mm. and its VT is 10 mm. above HP. Determine the true length of the line and its inclination with HP. Also locate its traces.

Or

(b) An equilateral triangular lamina of 40 mm. side is placed with one of its sides on HP such that the surface of the lamina is inclined at 45° to HP. The edge on which it rests is inclined at 45° to VP. Draw the projections.

(20 marks)

2. (a) A hexagonal pyramid side of base 30 mm. and axis 60 mm. long has one of its slant edges in HP. A plane containing that edge and the axis is perpendicular to the HP and inclined at 40° to the VP. Draw the projections of the pyramid when the base corner contained by the slant edge is 53 mm. from VP. Its vertex is nearer to VP.

Or

(b) A tube of side 40 mm. is cut by a plane such that the true shape of the section is a regular hexagon. Indicate the section plane and draw the sectional plan and true shape of the section.

(20 marks)

3. (a) A right circular cone diameter of base 40 mm. and height 60 mm. rests on its base on the HP. A section plane perpendicular to VP and inclined at 45° to HP cuts the cone bisecting the axis. Draw the development of the truncated cone.

Or

(b) A hexagonal prism of side of base 30 mm. and 70 mm. long has a square hole of sides 20 mm. at the centre. The axis of the square hole and hexagonal prism coinside and one of the faces of the square hole is parallel to one of the faces of the hexagon. Draw the isometric view of the prism with the hole.

(20 marks)

 $[3 \times 20 = 60 \text{ marks}]$ 

## Part B

## Answer any two questions.

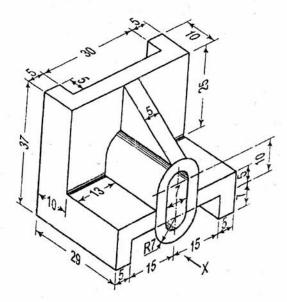
4. (a) A rectangular pyramid of base 70 × 50 mm<sup>2</sup> and altitude 90 mm. rests with its base on the ground plane. One corner of the base is 25 mm. to the left of the eye and in the PP. The 70 mm. long edge of the base recedes from the PP towards the right at an angle of inclination 40° with PP. The eye is 180 mm. from the PP and 130 mm. above GP. Draw the perspective of the pyramid.

(20 marks)

(b) Draw the three views of a hexagonal headed bolt of size  $\mu 24$ . The length of the bolt is 80 mm. and thread length is 54 mm.

(20 marks)

(c) Draw the dimensional orthographic views (all three) of the object shown in Figure below.



(20 marks)

 $[2 \times 20 = 40 \text{ marks}]$