Course Code: 1910301 **MLRITM R19**

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I B.Tech I Sem Regular Examination, Dec 2019/Jan 2020

ENGINEERING GRAPHICS

(CIVIL & MECH)

Time: 3 Hours. **Max. Marks: 70**

Answer all Five Questions
All questions carry equal marks

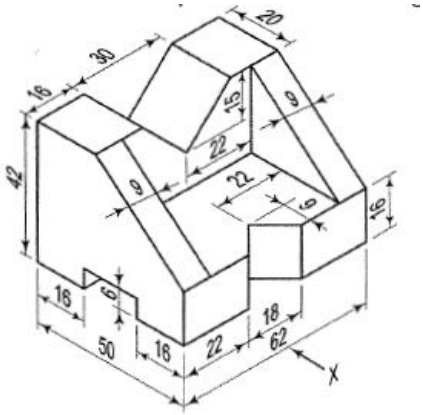
1	a)	Draw the Involute of a Pentagon of 40 mm side.	5 M
	b)	Draw an epicycloid of rolling circle of diameter 40 mm which rolls outside another circle (base circle) of 150 mm diameter for one revolution. Draw a tangent and normal at any point on the curve.	9 M
		OR	
2	a)	On a map, the distance between two points is 14 cm. The real distance between them is 20 km. Draw a diagonal scale of this map to read kilometres and hectameters, and to measure upto 25 km. Show a distance of 117.6 km on this scale.	6 M
	b)	Draw an ellipse, given the minor and major diameters are 100 mm and 150 mm respectively. Draw the tangent and normal at any points on the curve.	8 M
3	a)	PQRS is a rhombus having diagonal PR = 60 mm and QS = 40 mm and they are perpendicular to each other. The plane of the rhombus is inclined with H.P. such that its top view appears to be square. The top view of PR makes 30° with the V.P. Draw its projections and determine inclination of the plane with the H.P.	8 M
	b)	The top view of a 75 mm long line AB measures 65 mm, while the length of its front view is 50 mm. Its one end A is in the H.P. and 12mm in front of the V.P. Draw the projections of AB and determine its inclinations with the H.P. and the V.P.	6 M
		OR	
4	a)	A pentagonal plate of 45 mm side has a circular hole of 40 mm diameter in its centre. The plane stands on one of its sides on the H.P. with its plane perpendicular to V.P. and 45° inclined to the H.P. Draw the projections.	8 M
	b)	A line AB 75 mm long has its end A in the H.P. and 12 mm in front of V.P. the line is inclined at 60 degrees to H.P. and 30 degrees to V.P. draw projections	6 M
5		A pentagonal prism, base 28 mm side and height 65 mm has an edge of its base on the H.P. and the axis parallel to the V.P. and inclined at 60° to the H.P. A section plane, having its V. T. inclined at 60° to xy and passing through the highest corner, cuts the prism. Draw the sectional top view and true shape of the section.	14 M
		OR	
6		A hexagonal pyramid, base 25 mm side and axis 50 mm long, has an edge of its base on the ground. Its axis is inclined at 30° to the ground and parallel to the V.P. Draw its projections.	14 M

7 A cube of 40 mm edge stands on one of its faces on H.P. with a vertical face making 45° to V.P. a hole of 30 mm diameter and whose axis is perpendicular to V.P. and parallel to H.P. is drilled centrally through the cube such that the hole passes through the opposite vertical edges of the cube. Obtain the development of the lateral surfaces of the cube with the hole. 14 M

OR

8 A vertical square prism, base50mmside, is completely penetrated by a horizontal square prism, base 35 mm side, so that their axes intersect. The axis of the horizontal prism is parallel to the prism., while the faces of the two prisms are equally inclined to the prism. Draw the projections of the solids, showing lines of intersection. (Assume suitable lengths for the prisms.) 14 M

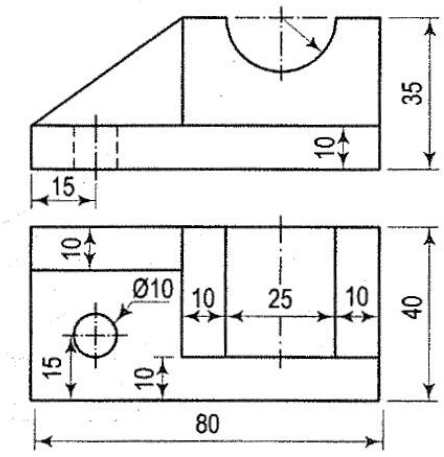
9 a) Draw the following views of the block shown pictorially. Use third-angle projection method. (i) Front view (ii) Top view (iii) Both side view 11 M



b) Draw the isometric projection of a circular lamina of diameter 60mm. 3 M

OR

10 a) Draw the isometric view of the casting shown in two views in the figure 9 M



b) Draw the following views of the block shown pictorially. Use third-angle projection method. (i) Front view (ii) Top view (iii) side view 5 M