Q.P. Code: 16ME302 **R16**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech I Year II Semester Supplementary Examinations March-2021

ENGINEERING GRAPHICS

(Common to CE, EEE, AGE & ME)

Time: 3 hours Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	Draw the involute of a regular hexagon of side 20 mm. Draw a tangent and normal to the curve at a distance of 100 mm from the centre of the hexagon.	7M
	b	Draw a hypo cycloid of a circle of 50 mm diameter, which rolls inside another circle of 180 mm diameter for one revolution counter-clockwise	5M

OR

2	a	A ball thrown up in the air reaches maximum height of 45 meters and travels a horizontal distance of 75 metres. Trace the path of the ball, assuming it to be parabolic	6M
	b	Construct an ellipse, with distance of the focus from the directrix as 50 mm and eccentricity as 2/3. Also draw normal and tangent to the curve at a point 40 mm from the directrix.	6M

UNIT-II

3	a	Draw the projections of a straight-line AB of 70 mm long, in the following positions: a) Inclined at 300 to VP, in HP and one end on VP, b) Inclined at 450 to HP, one end 20 mm above HP and parallel to and 30 mm in front of VP, c) Inclined at 600 to VP, one end 20 mm in front of VP and parallel to and 25 mm above HP.	8M
	b	State the quadrants in which the following points are located A – Front view blow xy and top view above xy. B – Front and top views are above xy. C – Front view above xy and top view below xy. D – Front and top views are below xy.	4M

OR

4	a	Draw the projections of the following points on a common reference line: A, 25mm above the HP and 35mm in front of the VP. B, 25mm above the HP and 40mm behind the VP. C, 30mm below the HP and 40mm behind the VP. D, 30mm below the HP and 35mm in front of the VP. E, 25mm above the HP and in the VP. F, 30mm below the HP and in the VP. G, 35mm in front of the VP and in the HP. H, 40mm behind the VP and in the HP.	8M
	b	Mention the relative positions of the projections of the following points with respect to xy: A – In the second quadrant. B – In the third quadrant. C – In the first quadrant. D – In the fourth quadrant.	4M

UNIT-III

5	a	A thin 300 – 600 set-square has its longest edge (diagonal) on HP and inclined at 300 to VP. Its surface makes an angle of 450 with HP. Draw the projections, choosing suitable size for the set-square.	6M
	b	A semi-circular plane of diameter 70mm has its straight edge on the VP and inclined at 30 degree to the HP. draw the projection of the plane when its surface is inclined at 45 degree to VP	6M

OR

6 **a** Draw the projections of a cone, base 30 mm diameter and axis 50 mm long, resting on HP on a point of its base circle with (a) the axis making an angle of 450 with HP and its top view making an angle of 300 with VP **6M**

b An equilateral triangular plane ABC of side 40mm, has its plane parallel to VP and 20mm away from it. Draw the projections of the plane when one of its sides is (i) perpendicular to HP (ii) parallel to HP and (iii) inclined to HP at an angle of 450. **6M**

UNIT-IV

7 **a** A square pyramid of base 40 mm and axis 60 mm long, Its base lies on VP, with its axis parallel to HP. A cut sectional plane, 60 degree to VP and it pass 10mm away from the axis. Draw the projections sectional front view. **8M**

b A cylinder of diameter of base 40 mm and axis 55 mm long, is resting on its base on HP. It is cut by a section plane, perpendicular to VP and inclined at 45 degree to HP. The section plane is passing through the top end of an extreme generator of the cylinder. Draw the development of the lateral surface of the cut cylinder. **4M**

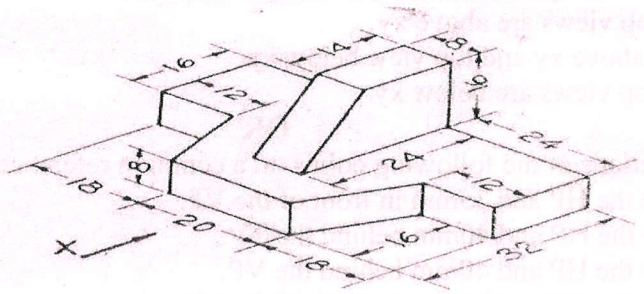
OR

8 **a** A square pyramid, with side of base 30 mm and axis 50 mm long, is resting on its base on HP with an edge of the base parallel to VP. It is cut by a section plane, perpendicular to VP and inclined at 45 degree to HP. The section plane is passing through the mid-point of the axis. Draw the development of the surface of the cut pyramid. **6M**

b A cone of 50 mm diameter and axis 70 mm long. Its base is on HP. It is cut by a sectional plane perpendicular to VP and inclined to HP at 45 degree from apex 32mm .Draw the projections of FV,S.TV, True shape. **6M**

UNIT-V

9 **a** Draw three views of the blocks shown pictorially in figure according to first angle projection (All dimensions are in mm)



8M

b Draw the isometric projection of the frustum of a cone of base diameter 60 mm ,top diameter 30mm,and height 55mm. **4M**

OR

10 **a** Draw the isometric projection of a pentagonal prism of base side 35 mm and axis 60mm. The prism rests on its base on the HP with an edge of the base parallel to the VP. **8M**

b Draw the isometric view of a cylinder of base diameter 50mm and axis 60 mm the axis of the cylinder is perpendicular to the (a)HP (b)VP **4M**

***** END *****