R16

Time: 3 hours   Max Marks: 75

Answer any five questions
All questions carry equal marks
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1.a)   Draw a parabola having an abscissa of 30 mm and the double ordinate are 70 mm.
  b)   An area of 144 sqcm on a map represents an area of 9 sqkm on the field. Find the R.F. of the scale for this map and draw a diagonal scale to show kilometers, hectametres and decameters and to measure upto 6 kilometres. Indicate on the scale a distance of 4 kilometres, 5 hectametres and 6 decameters.   [7+8]

OR

2.a)   Draw a parabola having conjugate axes of 60 mm and 40 mm long and inclined at 75^0 to each other.
  b)   Construct a Diagonal scale of RF = 3:200 showing meters, decimeters and centimeters. The scale should measure up to 6 meters. Show a distance of 4.56 meters.   [7+8]

3.a)   Line AB is 75 mm long and is making 30^0 and 40^0 inclination to HP and VP respectively. End A is 12mm above HP and 10 mm in front of VP. Draw projections. Line is in 1st quadrant.
  b)   Draw the front view, top view and side view of a square lamina. The surface of the lamina is inclined at 45^0 to HP and perpendicular to VP.   [8+7]

OR

4.a)   Line AB 75mm long makes 45^0 inclination with VP while it's FV makes 55^0. End A is 10 mm above HP and 15 mm in front of VP. If line is in 1st quadrant draw it's projections and find it's inclination with HP.
  b)   A circular plate of diameter 80 mm is resting on a point of its periphery on H.P. such that it makes an angle of 40^0 to the H.P. The diameter passing through the point of its resting on H.P. makes an angle of 60^0 with V.P. Draw the projections of it.   [8+7]

5.a)   A pentagonal prism has height 60 mm and the side of a base 30 mm. The prism rests on one of its sides of the base on the H.P. and makes an angle of 45 degrees with the V.P. Draw its projections.
  b)   A cone of diameter of base 60 mm and axis length equal to 100 mm rests on one of its slant generators on H.P. such that its axis is inclined at an angle of 65^0 with the V.P. Keep its apex near to the V.P. and draw the projections.   [7+8]

OR

6.a)   A hexagonal pyramid of 30 mm side of base and 70 mm height, resting on the H.P. such that the axis is inclined at 30^0 to the H.P. and the edge is inclined at 45^0 to VP. Draw its projections.
  b)   A pentagonal prism of side of base equal to 40 mm and axis height 110 mm rests on one of its corner of its base on H.P. such that the axis is inclined at an angle of 40^0 with H.P. and 60^0 with the V.P. Draw its projections.   [8+7]

7. A cylinder of diameter 50 mm and axis height 60 mm is resting on its base on H.P as shown in figure 1. One square hole of size 25 mm is cut through the cylinder such that the axis of the square hole is parallel to H.P. perpendicular to V.P. and in the center of the vertical axis of the cylinder. The sides of the square hole are equally inclined with the H.P. Develop the lateral surface of the cylinder. [15]
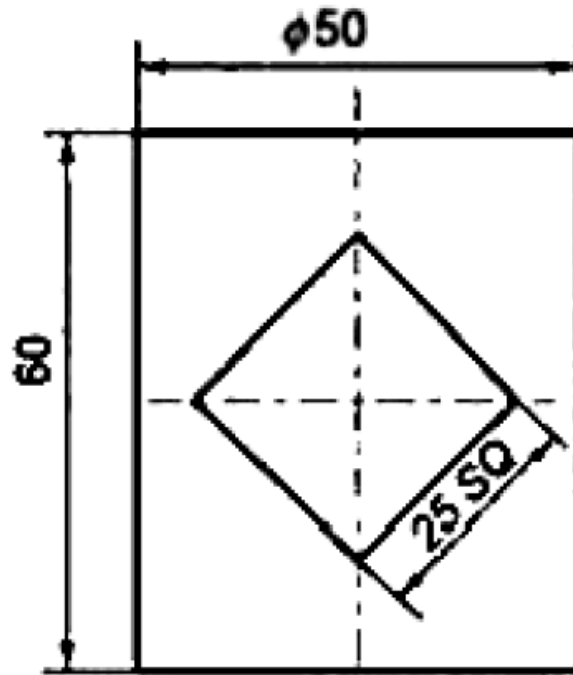

Figure: 1

OR

8. The cone of diameter of base 50 mm and axis height 60 mm is resting on its base on H.P. as shown in the figure 2 below. One square hole of size 20 mm is cut through the cone as per the figure given below. Develop the surface of the cone. [15]
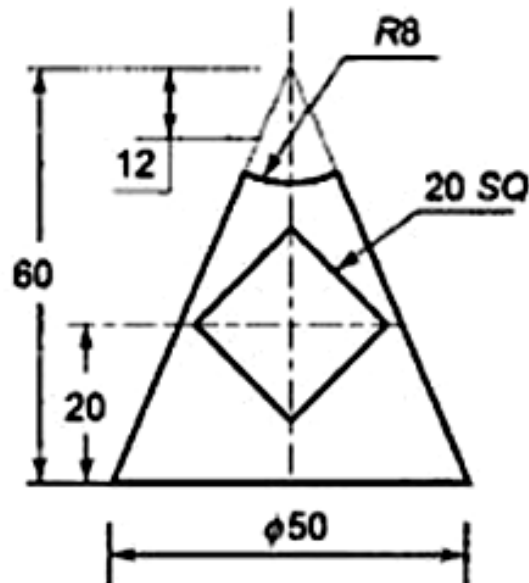

Figure: 2

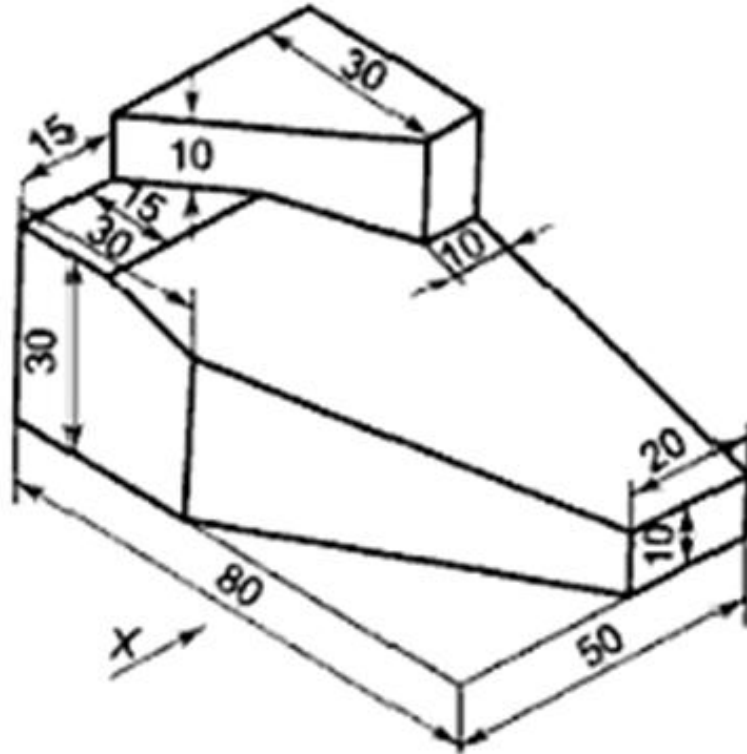9.   Draw the orthographic view of the following figure 3. All dimensions are in mm. [15]

Figure: 3

OR

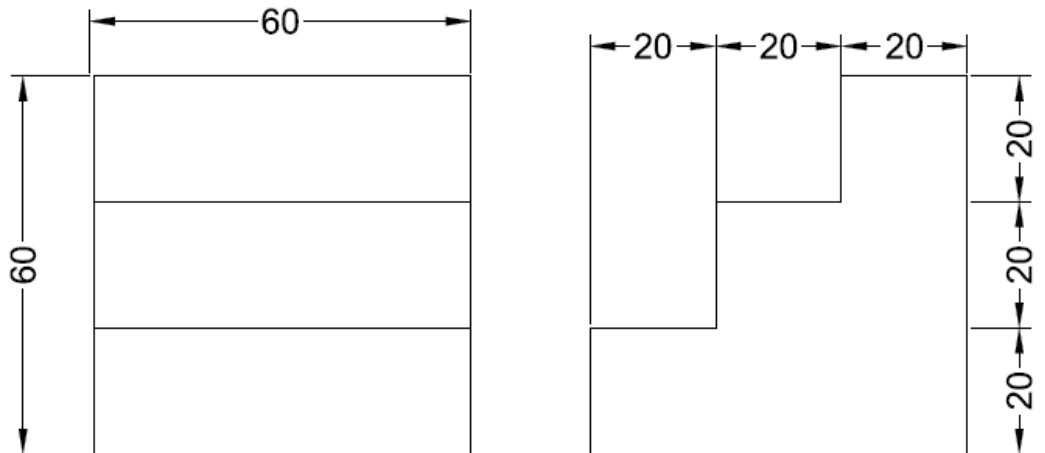10   Draw the isometric view of the following figure 4. All dimensions are in mm.   [15]

Figure: 4

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