Code No: RR10107 **Set No.1**

I B.Tech. Regular Examinations, June -2005
ENGINEERING GRAPHICS
(Common to Civil Engineering, Mechanical Engineering, Mechatronics, Metallurgy & Material Technology and Production Engineering)
Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. Construct a scale of 1:4 to show centimeters and long enough to measure up to 6 decimeters and show on it a length of 4.5 decimeters.

2. Construct an ellipse, when the distance of the focus from the directrix is equal to 60 mm and eccentricity 2/3 . Also draw a normal and tangent to the curve at a point 35 mm from the focus.

3. Draw the front view, top view and side view for the picture shown in figure1 below in first angle projection.

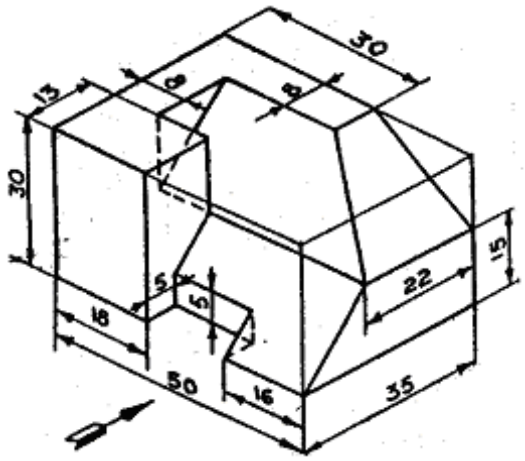

Figure 1:

4. Draw a rhombus of diagonals 100 mm and 60 mm long , with the longer diagonal horizontal. The figure is the top view of a square of 100 mm long diagonals, with a corner on the ground. Draw its front view and determine the angle which its surface makes with the ground.

5. A square prism, base 40 mm side and height 65 mm, has its axis inclined at 45 degrees to the H.P. and has an edge of its base, on the H.P. and inclined at 30 degrees to the V.P. Draw its projections.

6. A vertical cylinder of 50 mm diameter is penetrated by a horizontal cylinder of same size with their axes intersecting. Draw the curves of intersections if the axis of the horizontal cylinder is inclined at 45^o to VP

7. A cylinder of base diameter 30 mm axis 60 mm is resting centrally on a slab of 60 mm square and thickness 20 mm. Draw the isometric projection of the combination of the solids.

8. Draw the perspective view of a point P is situated 10 mm behind the PP and 15 mm above the ground plane. The station point is 25 mm in front of the PP, 20 mm above the ground plane. It lies in a central plane 12 mm to the right of the point.

⋆ ⋆ ⋆ ⋆ ⋆

Code No: RR10107 **Set No.2**

I B.Tech. Regular Examinations, June -2005
ENGINEERING GRAPHICS
(Common to Civil Engineering, Mechanical Engineering, Mechatronics, Metallurgy & Material Technology and Production Engineering)
Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. An area of 144 sq.cm on a map represents an area of 36 sq.km on the field. Find the R.F of the scale for this map and draw a Diagonal scale to show kilometers, hectameters and decameters and to measure up to 10 kilometers. Indicate on the scale a distance of 7 kilometers, 5 hectometers and 6 decameters.

2. Construct an ellipse, when the distance of the focus from the directrix is equal to 60 mm and eccentricity 2/3 . Also draw a normal and tangent to the curve at a point 35 mm from the focus.

3. The orthogonal views of the picture as shown in the figure2 below. Convert them into isometric view.

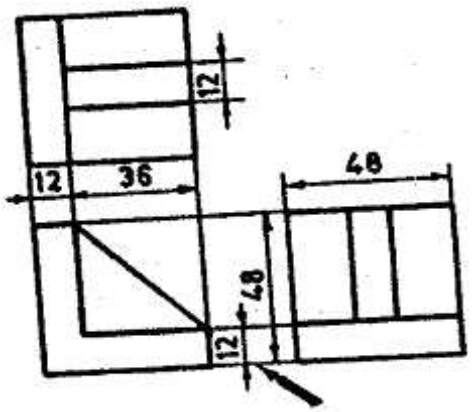

Figure 2:

4. Draw a rhombus of diagonals 100 mm and 60 mm long , with the longer diagonal horizontal. The figure is the top view of a square of 100 mm long diagonals, with a corner on the ground. Draw its front view and determine the angle which its surface makes with the ground.

5. A cube of 65 mm long edges has its vertical faces equally inclined to the V.P. It is cut by a section plane, perpendicular to the V.P., so that the true shape of the section is a regular hexagon . Determine the inclination of the cutting plane with the H.P. and draw the sectional top view and true shape of the section.

6. A hexagonal pyramid, side of base 30 mm axis 70 mm is resting on HP on its base. It is cut by a section plane perpendicular to V.P and at 45° to H.P and passing through the mid point of the axis of the pyramid. Draw the development of the lateral surface of the truncated pyramid.

7. Draw the isometric projection of a Frustum of hexagonal pyramid, side of base 30 mm the side of top face 15mm of height 50 mm.

8. Draw the perspective view of a cube of 25 mm edge resting on ground plane on one of its faces. It has one of its vertical edges in the PP and all vertical faces are equally inclined to the picture plane. The station point is 55 mm in front of the picture plane, 40 mm above the ground plane and is contained by a central plane 9 mm to the left of the center of the cube.

⋆ ⋆ ⋆ ⋆ ⋆

Code No: RR10107 **Set No.3**

I B.Tech. Regular Examinations, June -2005
ENGINEERING GRAPHICS
(Common to Civil Engineering, Mechanical Engineering, Mechatronics, Metallurgy & Material Technology and Production Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. The distance between Delhi and Saharanpur is 180 Km. The passenger train covers this distance in 6 hours. Construct a plain scale to measure time up to a single minute. The R.F of the scale is 1:2,00,000. Indicate the distance covered by the train in 36 minutes.

2. Inscribe an ellipse in a parallelogram having sides 200 mm and 100 mm long and an included angle of 120 degrees.

3. Convert the orthogonal projections shown in figure3 below into an isometric view of the actual picture.

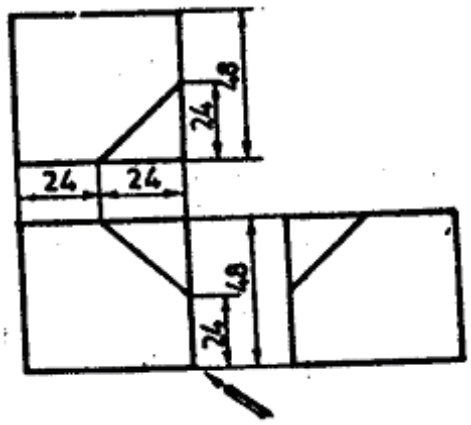

Figure 3:

4. A hexagonal plane of 30 mm side has a corner in the V.P. and the surface of the plane makes an angle 40 degrees with the V.P. Draw its projections when the front view of the diagonal through The corner which is in V.P. makes an angle of 50 degrees to H.P.

5. A square pyramid of base side 30mm and altitude 50mm lies on one of its triangular faces on the HP with its axis parallel to the VP. It is cut by a vertical plane inclined at 30^0 to the VP and meeting the axis at 40mm from the vertex measured in the plan. Draw the plan, sectional elevation and the true shape of the section.

6. A vertical hexagonal prism of 25 mm side of base and axis 60 mm has one of its rectangular faces parallel to VP. A circular hole of 40 mm diameter is drilled through the prism such that the axis of the hole bisects the axis of the prism at right angle and is perpendicular to VP. Draw the development of the lateral surface of the prism showing the true shape of the hole in it.

7. Draw the isometric projection of a Frustum of hexagonal pyramid, side of base 30 mm the side of top face 15mm of height 50 mm.

8. Draw perspective view of a straight line CD, 36 mm long, lying on the ground plane, with end C in the picture plane, and inclined at 30^0 to the PP. The station point is 48 mm in front of the picture plane, 36 mm above the ground plane, and lies in a plane 12mm to the right of the end C.

⋆ ⋆ ⋆ ⋆ ⋆

Code No: RR10107 **Set No.4**

I B.Tech. Regular Examinations, June -2005
ENGINEERING GRAPHICS
(Common to Civil Engineering, Mechanical Engineering, Mechatronics, Metallurgy & Material Technology and Production Engineering)
Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. An area of the land of 36 sq.km in area is represented by an area of 144 sq.cm on a map. Find R.F of the scale of this map. Draw a backward vernier scale to show kilometers, hectometers and decameters with the above R.F indicate on the scale a distance of 9 kilometers, 5 hectometers and 6 decameters.

2. Draw an ellipse by Oblong method. The major and minor axes given as 150 mm and 90mm respectively. Draw normal and tangent at any point on the ellipse at a distance of 55mm from the geometrical center of the ellipse.

3. Consider the picture shown in figure4 below and draw the front view, top view and side view in first angle projection.

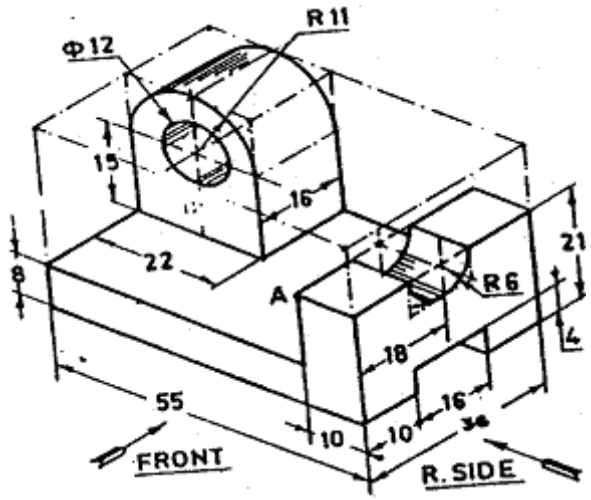

Figure 4:

4. A line AB 75mm 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.

5. Draw the projections of a cone, base 30mm diameter and axis 50mm long, resting on HP on a point of its base circle with the axis making an angle of 45^0 with HP and 30^0 with VP.

6. A hexagonal prism of side of base 30 mm and axis 65 mm stands on one of its ends in HP with two of rectangular faces parallel to V.P. A circular hole of diameter 40 mm is drilled completely through the prism such that the axis of the hole is perpendicular to V.P and bisects the axis of the prism. Draw the development of the lateral surface of the prism showing the shape of the holes formed on it.

7. A cylinder of base diameter 30 mm axis 60 mm is resting centrally on a slab of 60 mm square and thickness 20 mm. Draw the isometric projection of the combination of the solids.

8. Draw the perspective view of a point P is situated 10 mm behind the PP and 15 mm above the ground plane. The station point is 25 mm in front of the PP, 20 mm above the ground plane. It lies in a central plane 12 mm to the right of the point.

⋆ ⋆ ⋆ ⋆ ⋆