

Subject Code: R13209/R13

Set No - 1

I B. Tech II Semester Regular/Supplementary Examinations May/June - 2016
ENGINEERING DRAWING

(CSE)

Time: 3 hours

Max. Marks: 70

Question Paper Consists of **Part-A** and **Part-B**
Answering the question in **Part-A** is Compulsory
Three Questions should be answered from **Part-B**

PART-A

1. (a) A semi circular plate of 80mm diameter has its straight edge in the VP and inclined at 45^0 to the HP. The surface of the plate makes an angle of 30^0 with the VP. Draw its projections.
- (b) Sketch the truncated cone such that the section surface which gives the rectangular hyperbola.
- (c) A straight line AB, 60mm long makes an angle 40 degrees to VP and parallel to profile plane. The end A touches both the planes. Draw the projections of the line.

[10+4+8]

PART-B

2. (a) A triangular plot of land of area 25 km^2 is represented on a map of size 9cm base and 18cm height. Construct a diagonal scale to read kilometers, hectometers and decameters. Indicate a distance of 4.44 km on it.
 - (b) Construct a hexagon of side 28mm when one side is vertical.
- [8+8]
3. (a) A point P is 20mm below HP and lies in the third quadrant. Its shortest distance from xy is 40mm. Draw its projections.
 - (b) A 100mm long line is parallel to and 40mm above the HP. Its two ends are 25mm and 50mm in front of the VP respectively. Draw its projections and find its inclination with the VP.
- [8+8]
4. A line AB inclined at 30^0 to the HP, has its ends A and B, 32 mm and 66 mm in front of the VP respectively. The top view measures 62 mm and its HT is 15 mm in front of the VP. Draw its projections and determine its true length. Also locate its VT.
- [16]
5. A regular pentagonal lamina of side 25 mm is lying in such way that the one of its base edge touches both the reference planes. If the lamina makes 40^0 with the VP and perpendicular to profile plane, draw the projections of the lamina.
- [16]
6. A hexagonal prism, base 40mm side and height 40mm has a hole of 40mm diameter drilled centrally through its ends. Draw its projections when it is resting on one of its corners on HP with its axis inclined at 60^0 to the HP and two of its faces parallel to the VP.

[16]



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Three Questions should be answered from **Part-B**

PART-A

1. (a) A rectangular lamina of size 50mm x 40mm has a coaxial circular hole of 30mm diameter. It is resting on HP with a shorter edge perpendicular to VP. The surface of the lamina is inclined at 35° to HP. Draw top, front and left side views.
- (b) A thread is connected between the two diagonally opposite corners of a room and it appears as a straight line of length of 50 mm on the side plane at an angle of 45 degrees to the horizontal reference line. If the top corner is equidistant from the walls and the ground, determine its distance using the geometric construction of views.
- (c) Sketch the following:
 - (i) Unidirectional and aligned dimensioning methods
 - (ii) Regular heptagon

[9+7+6]

PART-B

2. (a) Draw an octagon given the length of side 25mm.
 - (b) A component of an electronic instrument measuring a length of 0.5mm is to be represented by a line of 2mm on the drawing. Find the R.F. Devise a diagonal scale showing cm, mm and $1/10^{\text{th}}$ of mm and long enough to measure 5cm. Mark a distance of 30.5mm on the scale.
- [8+8]
3. (a) Draw the projections of the following points on the same ground line, keeping the projectors 25mm apart.
 - (i) D 25mm below the HP and 25mm behind the VP
 - (ii) E 15mm above the HP and 50mm behind the VP
 - (iii) F 40mm below the HP and 25mm in front of the VP
 - (b) The top view of a 75mm long line measures 55mm. The line is in the VP; its one end being 25mm above the HP. Draw its projections.
- [9+7]
4. A 100 mm long line is inclined at 45° to the HP and 30° to the VP. Its mid point is 25 mm above the HP and 35 mm in front of the VP. Draw the projections and locate the traces.
- [16]
5. PQRS is a rhombus having diagonal PR=60mm and QS=40mm and they are perpendicular to each other. The plane of the rhombus is inclined with HP such that its top view appears to be square. The top view of PR makes 30° with the VP. Draw its projections and determine inclination of the plane with the HP.
- [16]



6. A pentagonal pyramid of base edges 30 mm and axis 70 mm long has a corner of base on HP. Draw its projections when the slant edge through corner lies on HP and is parallel to VP. [16]
7. Draw (a) Front View
(b) Top View
(c) Side View (Figure 1)

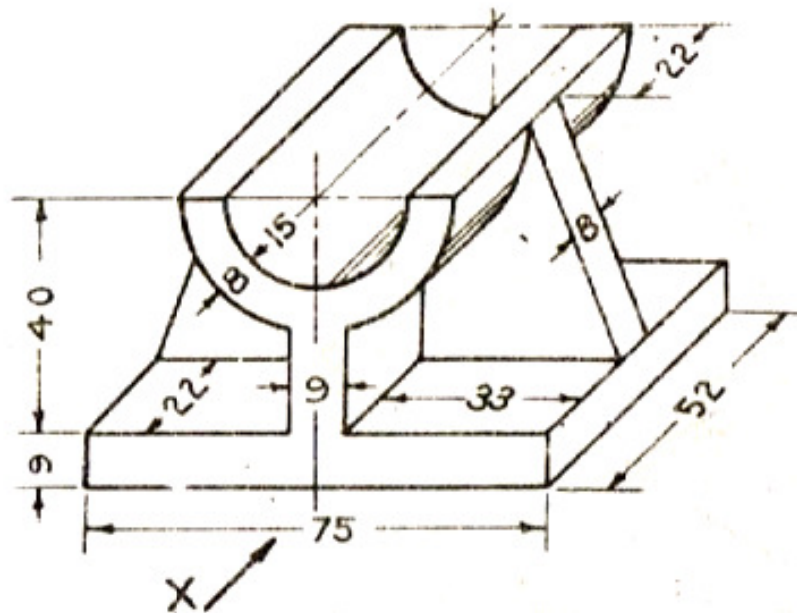


Figure 1

[16]



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Set No - 3

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Time: 3 hours

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Answering the question in **Part-A** is Compulsory,
Three Questions should be answered from **Part-B**

PART-A

- (a) The top view of a plate, the surface of which is perpendicular to the VP and inclined at 60° to the HP is a circle of 60mm diameter. Draw its three views.
- (b) A pentagonal pyramid has an altitude of 65 mm and side of base 25 mm. The pyramid rests on its apex on HP such that one of the triangular faces is perpendicular to both VP and HP. Draw the top and front views.

[12+10]

PART-B

- (a) An under-pass of a fly-over has a size of 270m x 10m x 10m. It is represented on a model by a volume of 8 cu.cm. What is R.F? Construct a diagonal scale to read up to 300m. Mark the distances 199m and 8m on the scale.
 - (b) Construct a regular polygon of any number of sides, given the length of its sides equal to 25mm.
- [8+8]
- (a) Two points A and B are in the HP. The point A is 30mm in front of the VP; while B is behind the VP. The distance between their projectors is 75mm and the line joining their top views makes an angle of 45° with xy. Find the distance of the point B from the VP.
 - (b) A 90mm long line is parallel to and 25mm in front of the VP. Its one end is in the HP while the other is 50mm above the HP. Draw its projections and find its inclination with the HP.
- [8+8]
- A line CD of length 65 mm is inclined at 45° to HP and 30° to VP. The end D is 50 mm above HP and 45mm in front of VP. Draw the projections of the line and locate its traces.
- [16]
- A thin circular plate of 70mm diameter is resting on its circumference such that its plane is inclined 60° to the HP and 30° to the VP. Draw the projections of the plate.
- [16]
- Draw the projections of a pentagonal prism, base 25mm side and axis 50mm long, resting on one of its rectangular faces on the HP with the axis inclined at 45° to the VP.
- [16]
- Draw the isometric projection of a sphere of 40 mm diameter resting centrally on the frustum of a hexagonal pyramid with a top face of 30 mm sides, a base of 40 mm sides, and axis 80 mm long.

[16]



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Three Questions should be answered from **Part-B**

PART-A

1. (a) The plate having an shape of an isosceles triangle has base 50mm long and altitude 70mm. It is so placed that in the front view it is seen as an equilateral of 50mm sides and one side inclined at 45° to xy. Draw its top view.
- (b) Draw the isometric view of a hexagonal pyramid of 20 mm base edges and height 60 mm long when it rests on its base on HP with two of its opposite sides of base parallel to VP.
- (c) Sketch the octagon of side 25mm.

[10+8+4]

PART-B

2. Draw an ellipse of major and minor axes of 90mm and 60 mm respectively. Also draw tangent and normal at a point 70 mm from the centre of the ellipse. [16]
3. (a) A point *P* is situated in the first quadrant and equidistant from the reference planes. Its shortest distance from the reference planes is 60 mm. Draw the projections of the point and determine its distance from the principal planes. [16]
- (b) A line CD is parallel to VP and inclined at 40° to HP. C is in HP and 25mm in front of VP. Top view is 50mm long. Find its true length. [8+8]
4. Two oranges on a tree are respectively 1.8m and 3m above the ground, and 1.2m and 2.1m from a 0.3m thick wall, but on the opposite sides of it. The distance between the oranges measured along the ground and parallel to the wall is 2.7m. Determine the real distance between the oranges. [16]
5. A circular plate of negligible thickness and 50mm diameter appears as an ellipse in the front view, having its major axis 50mm long and minor axis 30mm long. Draw its top view when the major axis of the ellipse is horizontal. [16]
6. A hexagonal pyramid, base 25mm side and axis 50mm long, has an edge of its base on the ground. Its axis is inclined at 30° to the ground and parallel to the VP. Draw its projections. [16]
7. A square pyramid of base edges 30 mm and axis 50 mm long is placed on the top of a cube whose sides are 45 mm long. The edges of the cube are parallel to the base edges of the pyramid. Draw the isometric projection of the two solids when their axes are collinear. [16]

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