

I B. Tech II Semester Regular/Supplementary Examinations, April/May - 2019
ENGINEERING DRAWING
 (Com. to CE, EEE, BIO)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
 2. Answering the question in **Part-A** is Compulsory
 3. Answer any **FOUR** Questions from **Part-B**

PART -A

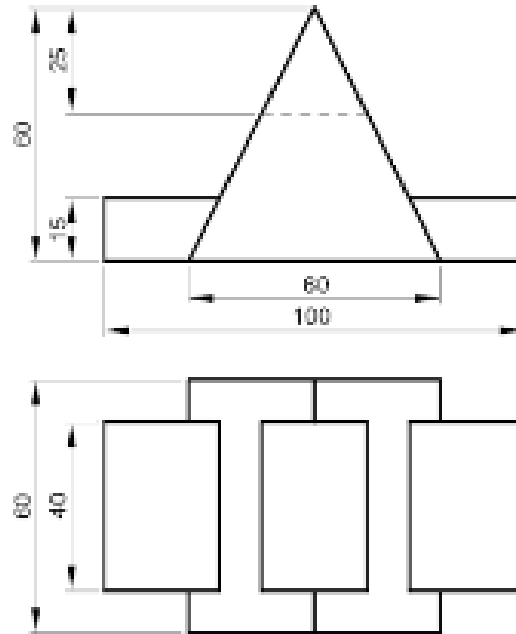
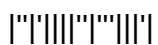
1. a) An electric switch and a bulb fixed on a wall are 5 m apart. The distance between them measured parallel to the floor is 4 metres. If the switch is 1 m above the floor, find the height of the bulb and inclination of line joining the two with the floor. (8M)
- b) A square plane of diagonal 70 mm is kept in such a way that its top view appears as a rhombus of 70 mm and 45 mm diagonals. Draw its projections and determine inclination of the plane with the H.P. (6M)

PART -B

2. a) Draw regular pentagon, hexagon and a heptagon on a common edge of side 30 mm. (6M)
- b) Construct a scale of 1:40 to read metres, decimeters and centimeters and long enough to measure up to 6 m. Mark a distance of 4.76 m on it. (8M)
3. a) A point U is 12 mm below HP, 25 mm behind VP and 38 mm away from Profile Plane. Draw front view, top view and left side view of the point. (6M)
- b) An 80 mm long line PQ is inclined at 30° to the VP and is parallel to the HP. The end P of the line is 20 mm above the HP and 40 mm in front of the VP. Draw the projections of the line and determine its traces. (8M)
4. The end projectors of a line PQ are 50 mm apart, while those drawn for its HT and VT are 90 mm apart. The HT is 40 mm in front of the VP and the VT is 80 mm above the HP. Draw the projections of PQ if its end P is 10 mm above the HP. Also, determine its true length and inclinations with the reference planes. (14M)
5. A pentagon ABCDE of side 30 mm has its side AB in the VP and inclined at 30° to the HP and the corner B is 15 mm above the HP and the corner D is 30 mm in front of the VP. Draw the projections of the plane and find its inclination with the VP. (14M)
6. A pentagonal prism, of base side 30 mm and axis 70 mm is resting on one of its rectangular faces in the VP. Draw its projections. (14M)



7. The front and top views of an object are shown in figure. Draw its isometric view. (14M)



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**PART -A**

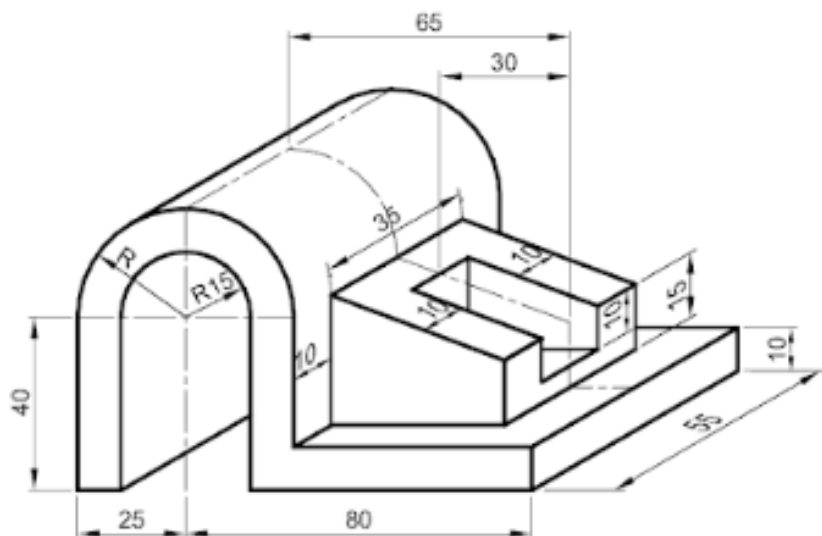
1. a) Divide an 80 mm long straight line into five equal parts. (4M)
- b) The top views of a line measures 60 mm. the line is parallel to the VP and inclined at  $45^0$  to the HP one end of the line is 25 mm in front of the VP and lies on the HP. Draw its projections and determine the true length. (6M)
- c) A hexagonal plane of side 25 mm has its surface parallel to and 25 mm in front of VP. Draw its projections when a side is parallel to HP. (4M)

**PART -B**

2. a) Inscribe the largest possible ellipse in a rectangle of sides 160 mm and 100 mm. (6M)
- b) The distance between two stations by road is 200 km and it is represented on a certain map by a 5 cm long line. Find the R.F and construct a diagonal scale showing single kilometer and long enough to measure up to 600 km. Show a distance of 467 km on this scale. (8M)
3. a) Two points P and Q lying in the VP are 90 mm apart. The horizontal distance between the points is 60 mm. if the point P is 15 mm above the HP. Find the height of the point Q above the HP and the inclination of the line joining P and Q with the HP. (6M)
- b) A 60 mm long line AB is parallel to and 20 mm in front of the VP the ends A and B of the line are 10 mm and 50 mm above the HP, respectively. Draw the projections of the line and determine its inclination with the HP. (8M)
4. An 80 mm long line MN has its end M 15 mm in front of the VP the distance between the ends projector is 50 mm. The front view is parallel to and 20 mm above reference line. Draw the projections of the line and determine its inclination with the VP. Also locate the traces. (14M)
5. The top view of a plane is a regular pentagon of side 30 mm having one side inclined at  $30^0$  to the VP. Its front view is a straight line inclined at  $45^0$  to the reference line. Draw the projections of the plane and determine its true shape. (14M)
6. A hexagonal prism of base side 30 mm and axis 70 mm is resting on a rectangular face on the HP. Draw its projections. (14M)

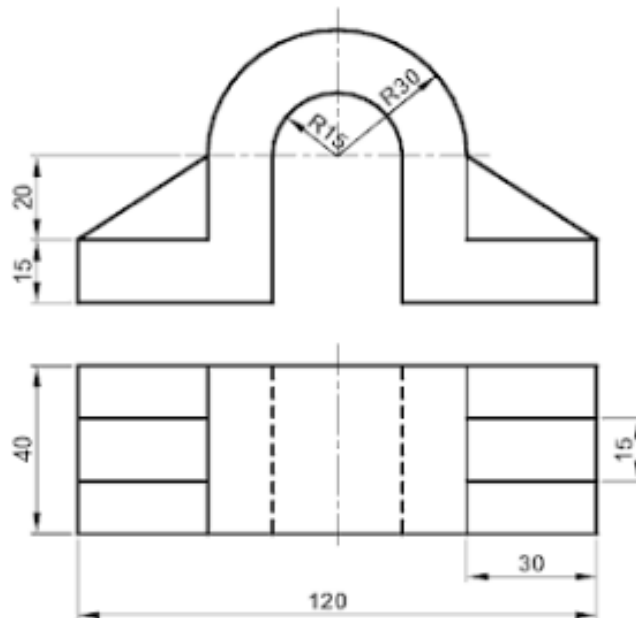
**R16**

7. Draw the front view and top view for the given figure. (14M)





4. A line PQ inclined at an angle of  $30^\circ$  to the HP has ends P and Q 30 mm and 65 mm in front of the VP, respectively. The length of the top view is 60 mm and its HT is 15 mm in front of the VP. Draw the projections of the line PQ and determine its true length and the VT. (14M)
5. A  $60^\circ$  set-square has the shortest edge of 40 mm lying in the VP the surface is inclined to the VP and perpendicular to the HP such that the front view appears as an isosceles triangle, draw the projections of the set-square and determine its inclination with the VP. (14M)
6. A pentagonal pyramid of base side 30 mm and axis 55 mm has a triangular face in the VP and the base edge contained by that triangular face is perpendicular to the HP. Draw its projections. (14M)
7. The front and top views of an object are shown in below figure. Draw its isometric view. (14M)



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**PART -A**

1. a) A composite plate of negligible thickness is made up of a rectangle with sides 60 mm and 40 mm and a semicircle on its longer side. The plate lies in the HP. with one of the shorter sides parallel to the VP. Draw its projections. (8M)
- b) Locate the traces of a straight line PQ, kept in the first angle for the following case. End P is 20 mm above the HP and 30 mm in front of the VP and the end Q is 80 mm above the HP and 60 mm in front of the VP the end projectors are 60 mm apart. (6M)

**PART -B**

2. a) The major and minor axes of an ellipse are 140 mm and 90 mm respectively. Find the foci and draw the ellipse using arcs of circle method. Draw a tangent and a normal to the ellipse at a point 40 mm above the major axis. (6M)
- b) On a map a rectangle of 125 cm × 200 cm represents an area of 6250 square kilometers. Draw a backward vernier scale to show decametre and long enough to measure up to 7 km. Show a distance of 6.43 km on it. (8M)
3. a) State the position of the point, the top view of which lies 50 mm above the reference line and the front view 30 mm below the top view. (6M)
- b) A 80 mm long line PQ has end P 20 mm above HP and 40 mm in front of the VP. The line is inclined at  $30^\circ$  to the HP and is parallel to the VP. Draw the projections of the line and determine its traces. (8M)
4. A line PQ inclined at  $30^\circ$  to the VP has the end P 15 above the HP. Its front view measures 70 mm and is inclined at  $45^\circ$  to reference line. The VT of the line is 25 below the HP. Draw the projections of the line PQ and determine its true length and the HT. (14M)
5. A circular lamina of diameter 60 mm has a centrally punched square hole of side 30 mm. Draw its projections when a diagonal of the hole is parallel to the VP and inclined at  $30^\circ$  to the HP. While the other is inclined at  $45^\circ$  to the VP. (14M)
6. A hexagonal prism, base side 40 mm and axis 40 mm has a centrally drilled circular hole of diameter 40 mm. Draw its projections when the prism is resting on an edge of its base on the HP and the axis inclined at  $60^\circ$  to the HP and parallel to the VP. (14M)

**R16**

7. Convert the following isometric view in to orthographic views. All dimensions are in millimeters. (14M)

