I B. Tech II Semester Regular/Supplementary Examinations May - 2016
ENGINEERING DRAWING
(Common to CE, PCE,IT,Chem E,Aero E,Auto E,Min E, Pet E, Metal E & Textile E.)

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**
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PART-A

1. (a) Construct heptagon using inscribe circle method.
   (b) Construct a parabola when the distance of the focus from the directrix is 50 mm.
   (c) A hexagonal prism having the side of base 26 mm and the height of 60mm is resting on one of the corner of the base and its axis is inclined to 30° to the HP. Draw its projections and also prepare the isometric view of the prism in the above stated condition.

                                                                     [4+6+12]

PART-B

2.   On a map, 120 cm x 100 cm represents an area of 3000 sq. meters. Draw a diagonal scale showing meters, decimeters, and centimeters and to measure up to 4 meters. Show a length of 2.73 meters on it.

                                                                     [16]

3. (a) Draw the projections of a point lying 25mm above HP and in first quadrant if its shortest distance from the line of intersection of planes is 40 mm. Also find the distance of the point from VP.
   (b) A straight line AB, 65mm long makes an angle 30 degrees to VP and parallel to profile plane. The end A is touches both the planes. Draw the projections of the line.

                                                                     [8+8]

4.   The mid point *M* of a straight line AB is 60 mm above HP and 50 mm in front of VP. The line measures 80 mm long and inclined at an angle of 30 degrees with HP and 45 degrees with VP. Draw its projections.

                                                                     [16]

5.   A regular pentagonal lamina of 30 mm side is touching HP with one of its sides while the opposite corner to this side of the lamina touches VP. If the lamina makes an angle of 60 degrees with HP and 30 degrees with VP, draw the projections of the lamina.

                                                                     [16]

6.   A pentagonal prism having a 20 mm edge of its base and an axis of 50 mm long, is resting on one of its rectangular faces on VP with the axis perpendicular to the profile plane. Draw the projections of the prism.

                                                                     [16]

7.   A hemisphere of diameter 40 mm with its flat circular face at the top is resting centrally on the top of a pentagonal prism of edge of base 35mm and thickness 25 mm. Draw the combined solid in isometric projection.

                                                                     [16]

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Subject Code: R13209/R13

Set No - 2

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PART-A

1. (a) Construct octagon using inscribe circle method.
   (b) A point P is 20 mm below HP and lies in the third quadrant. Its shortest distance from xy is 40 mm. Draw its projections.
   (c) Construct the isometric view of half cylindrical disc of diameter 40 mm and thickness 20 mm with its axis in horizontal position.
   (d) Draw the projections of a 60 mm straight line inclined at 40° to VP and its one end touches both the reference planes and parallel to the profile plane.

[4+4+8+6]
PART-B

2. The major and minor axes of an ellipse are 100 mm long and 60 mm long respectively. Locate the foci and draw the ellipse by arcs of circles method. Draw a tangent and normal to the ellipse at a point on it 25 mm above the major axis.

[16]

3. (a) Draw the projections of the following points on the same ground line, keeping the distance between projectors equal to 25 mm.
   (i) Point A, 25 mm in front of VP, 30 mm below HP
   (ii) Point B, in the VP, 20 mm above HP
   (iii) Point C, 20 mm below the HP, 20 mm behind the VP
   (iv) Point D, in the HP, 30 mm behind VP
   (b) A 70 mm long line is parallel to and 40 mm above the HP. Its two ends are 25 mm and 50 mm in front of the VP respectively. Draw its projections and find its inclination with the VP.

[8+8]

4. The top view of a line is 75 mm long and inclined to XY at 45 degrees. One end is 20 mm above HP and 10 mm in front of VP. The other end is 65 mm above HP and is in front of VP. What is the true length of the line and its inclination with HP and VP? Also show its traces.

[16]

5. Draw the projections of a rhombus having diagonals 100 mm and 40 mm long. The bigger diagonal is inclined at 30 degrees to HP with one of the end point in HP and the smaller diagonal is parallel to both the planes.

[16]

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6. A hexagonal prism with side of base 25 mm and axis 60 mm long is resting on one of the rectangular faces on HP. Draw the projections of the prism when its axis is inclined at 40 degrees to VP.

[16]

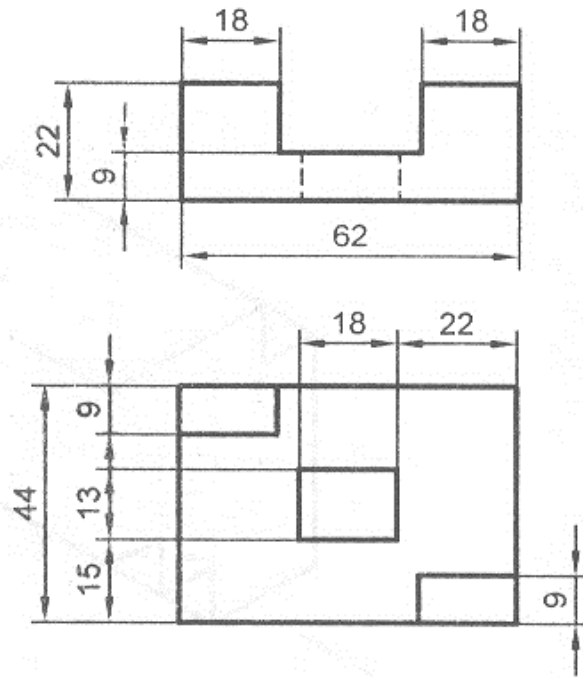7. Construct the isometric view from the following orthographic projections shown.(Figure1)

Figure 1

[16]

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PART-A

1. (a) Inscribe a regular octagon in a square of 50 mm side.
   (b) A point Q is situated in first quadrant. It is 40 mm above HP and 30 mm infront of VP. Draw its projections and find its shortest distance from intersection of HP and VP.
   (c) Construct the isometric view of pentagonal pyramid of side 25 mm with its axis in horizontal position.
   (d) The top view of a 75 mm long line measures 55 mm. The line is in the VP, its one end being 25 mm above the HP. Draw its projections.

                                                                                                      [4+4+8+6]

PART-B

2.   The sum of the distances of a point *P* from two fixed points is 120 mm and the distance between the fixed points is 80 mm. Draw the locus of the Point *P*.

                                                                                                      [16]

3. (a) Draw the projections of 65 mm long straight line in the following positions:
      (i) Inclined at 60° to the VP and its one end 15 mm infront of it; parallel to and 25 mm above the HP.
      (ii) Perpendicular to the VP, 25 mm above the HP and its one end in the VP.
   (b) A point 20 mm above XY line is the front view of two points E and F. The top view of E is 35 mm behind VP, and the top view of F is 40 mm in front of VP. Draw the projections of the two points and state their positions with reference planes and quadrants in which they lie.

                                                                                                      [8+8]

4.   The length of the top view of a line parallel to the V.P. and inclined at 45^0 to the H.P. is 50 mm. One end of the line is 12 mm above the H.P. and 25 mm in front of the V.P. Draw the projections of the line and determines its true length.

                                                                                                      [16]

5.   A thin circular plate of 50 mm diameter is resting on point A of its rim with the surface of the plate inclined at 45 degrees to the HP and the diameter through A inclined at 30 degrees to the VP. Draw the projections of the plate.

                                                                                                      [16]

6.   A Pentagonal pyramid, base 20 mm side and axis 45 mm long is rests on one of its base edges on HP such that the triangular face containing that side is perpendicular to both HP and VP. Draw its projection.

                                                                                                      [16]

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7. Draw front view, top view and a side view for the solid whose isometric given below. (Figure 1)
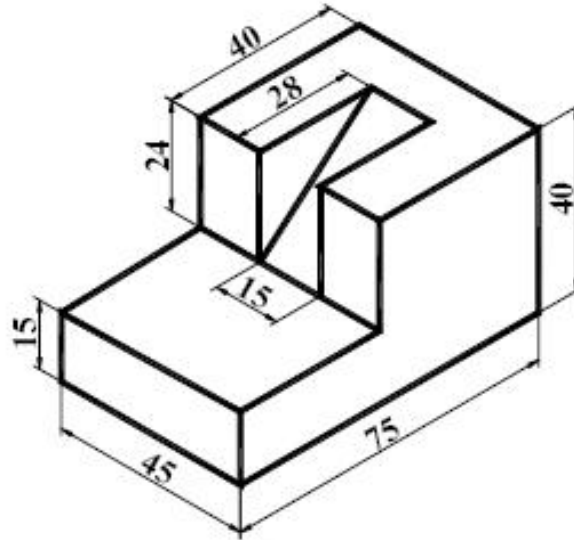
Figure 1

[16]

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PART-A

1. (a) Sketch the section planes of a cone which produces parabola and hyperbola.
   (b) Construct the isometric view of a sphere of radius 30 mm.
   (c) The top view of a square lamina of side 60 mm is a rectangle of 60 mm x 20 mm, with the longer side of the rectangle being parallel to the XY line, in both front and top views. Draw its projections.
   (d) A 75 mm long straight line is inclined at 45° to the VP, in the HP and its one in the VP.

                                                                        [4+4+10+4]
PART-B

2.   Construct a vernier scale to read distance correct to decameter on a map in which the actual distances are reduced in the ratio of 1:40000. The scale should be long enough to measure up to 6 km. Mark on the scale a length of 3.34 km and 0.59 km.

                                                                        [16]
3. (a) Draw the projections of the following points on the same ground line, keeping the distance between projectors equal to 20 mm.
      (i)   Point A, 25 mm below the HP, 30 mm in front of VP
      (ii) Point B, in the VP, 30 mm above HP
      (iii) Point C, 20 mm below the HP, 20 mm behind the VP
      (iv) Point D, in the HP, 25 mm behind VP
   (b) A point 20 mm above XY line is the front view of two points E and F. The top view of E is 35 mm behind VP, and the top view of F is 40 mm in front of VP. Draw the projections of the two points and state their positions with reference planes and quadrants in which they lie.

                                                                        [8+8]
4.   A line AB, inclined at 40° to the VP, has its ends 50 mm and 20 mm above the HP. The length of its front view is 65 mm and its V.T. is 10 mm above the HP. Determine the true length of AB, its inclination with the HP and its H.T.

                                                                        [16]
5.   A circular lamina of 60 mm diameter has a square hole of 25 mm side centrally punched. Draw the projections of the lamina when the lamina is resting on the VP with its surface inclined at 30 degrees to VP and an edge of the square hole perpendicular to HP.

                                                                        [16]
6.   A hexagonal pyramid having 20 mm sides at its base and an axis 70 mm long, has one of the corners of its base in the VP and its axis inclined at 45 degrees to the VP and parallel to the HP.

                                                                        [16]

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7. Draw the front view, top view and side view of the figure shown in isometric view. All dimensions are in mm. (Figure 1)
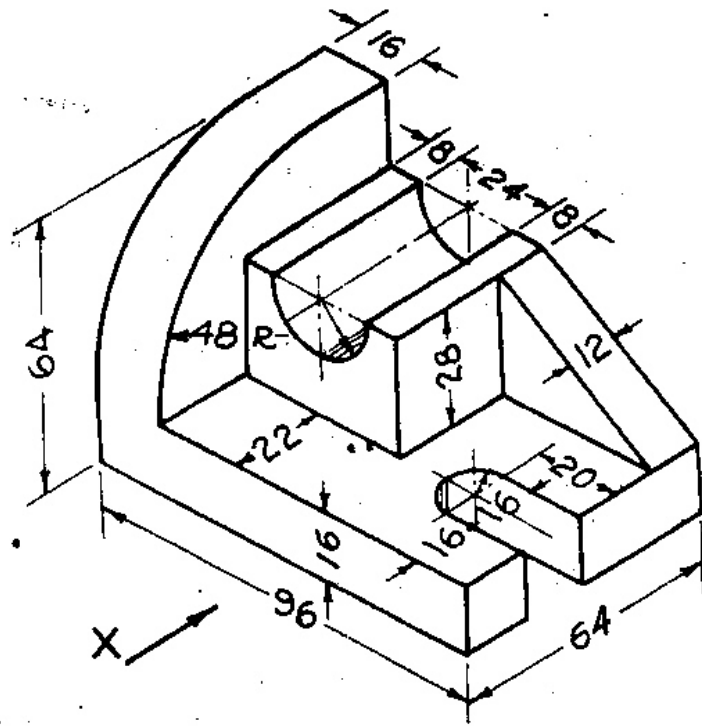

Figure 1

[16]

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