JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech I Year II Semester Examinations, August/September - 2017
ENGINEERING GRAPHICS
(Common to CSE, IT)

Time: 3 hours   Max. Marks: 75

Answer all five questions
All questions carry equal marks
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1.a) Construct a vernier scale to read distances correct to a decametre on a map in which the actual distances are reduced in the ratio of 1:40000. The scale should be long enough to measure 6 kilometres. Mark on the scale the lengths of 3.34 km and 0.57 km.

  b) The actual length of 300m is represented by a line of 10cm on a drawing. Draw a vernier scale to read up to 400m. Mark on the scale a length of 367km.   [7+8]

OR

2.a) A coil is unwound from a drum of 30 mm diameter. Draw the locus of the free end of the coil for unwinding through an angle of 360^0. Draw also a normal and tangent at any point on the curve.

  b) The distance between city A and City B is 15km. On inspection of the road map, its equivalent distance measures 3cm. Draw a diagonal scale to read 50m minimum. Show on it a distance of 3.85km.   [7+8]

3.a) A line AB is inclined at 30^0 to HP and its ends A and B are at 25mm and 60mm in front of VP respectively. The length of the top view is 65mm and its VT is 15mm above HP. Draw the projections of the line and draw its HT.

  b) The front view of a line makes an angle of 30^0 with xy. The H.T of the line is 45 mm in front of the V.P., while its V.T is 30 mm below the H.P. One end of the line is 10 mm above the H.P. and the other end is 100 mm in front of the V.P. Draw the projections of the line and determine its true length and its inclinations with the H.P and V.P? [7+8]

OR

4.a) Construct a rectangular hyperbola, when a point P on it is at a distance 30 mm and 40 mm from two asymptotes. Also, draw a tangent to the curve at a point 35 mm from asymptotes.

  b) The front view of a line AB measures 55mm and is inclined at 45^0 to xy. It's one end A is 20mm above HP, the HT of the line is 15mm in front of VP, the line is inclined at 30^0 to HP. Draw the projection of the line and determine its true length, inclination with VP and locate its VT.   [7+8]

5.a) Draw the projections of a pentagonal prism, base 25 mm side and axis 50 mm long resting on one of its rectangular faces on the H.P., with the axis inclined at 45^0 to the V.P.

  b) Draw the projections of a hexagonal pyramid, base 30 mm side and axis 60 mm long, having its base on the H.P and one of the edges of the base inclined at 45^0 to the V.P.
                  [7+8]

OR

6.a) A square duct is in the form of a frustum of a square pyramid. The sides of top and bottom are 150 mm. it is situated in such a way that its axis is parallel to the H.P., and lies in a plane inclined at 60^0 to the V.P. Draw the projections of the duct, assuming the thickness of the duct sheet to be negligible.

  b) One of the body diagonals of a cube of 45 mm edge is parallel to the H.P and inclined at 45^0 to the V.P. Draw front view and top view of the cube.   [7+8]

7.a) A triangular prism base 30 mm side and axis 50 mm long is lying on the H.P on one of its rectangular faces with its axis inclined at 30^0 to the V.P. It is cut by a horizontal section plane at a distance of 12 mm above the ground. Draw its front view and sectional top view?

b) A cone diameter of base 50 mm and axis 50 mm long is resting on its base on the H.P. It is cut by a section plane perpendicular to the V.P., Inclined at 75^0 to the H.P and passing through the apex. Draw its front view, sectional top view, and true shape of the section. [7+8]

OR

8.a) A square prism of base 40 mm side axis 80 mm long has its base on the H.P and its faces equally inclined to the V.P. It is cut by a plane perpendicular to the V.P., inclined at 60^0 to the H.P and passing through a point on the axis 50 mm above the H.P. Draw its front view and sectional top view?

b) A triangular pyramid having base 40 mm side and axis 50 mm long is lying on the H.P on one of its faces with the axis parallel to the V.P. A section plane parallel to the V.P cuts the pyramid at a distance of 6 mm from the axis. Draw its sectional front view and the top view. [7+8]

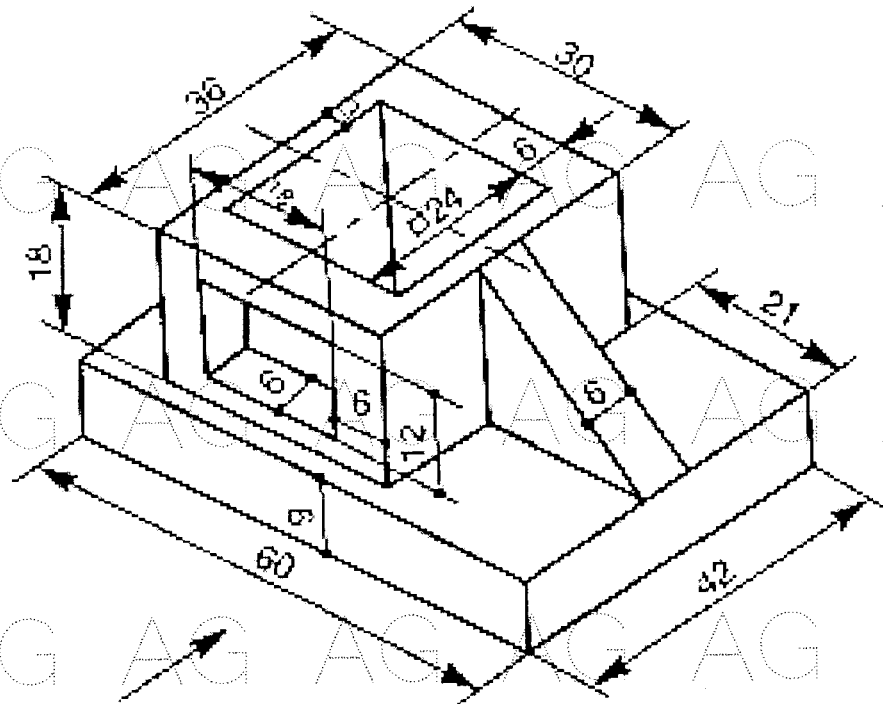9.a) Draw the front view, Top view and side view of the following figure 1. All dimensions are in mm.

Figure: 1

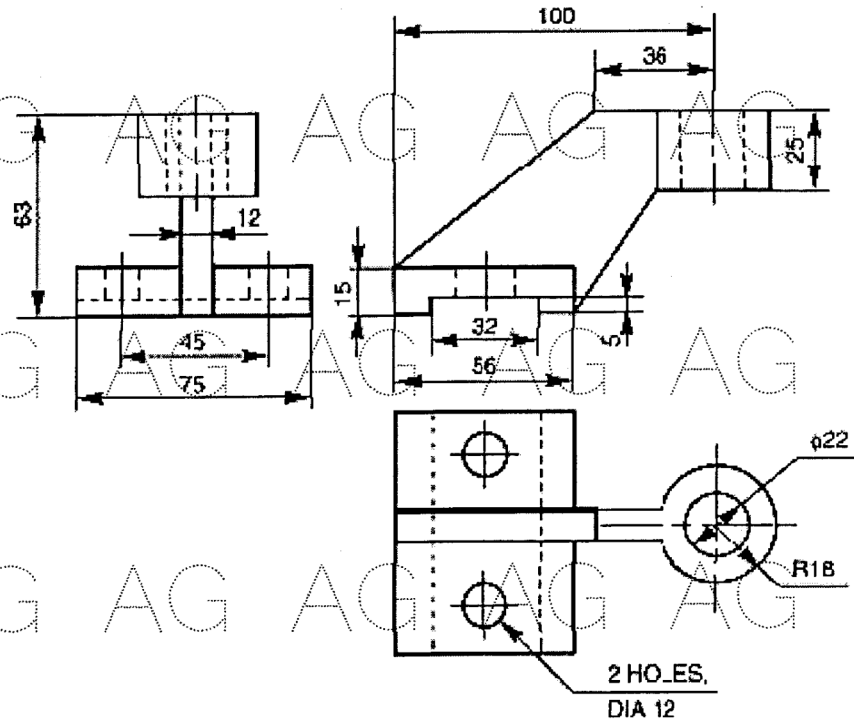b) Draw the Isometric view of the following figure 2. All dimensions are in mm. [7+8]

Figure: 2

OR

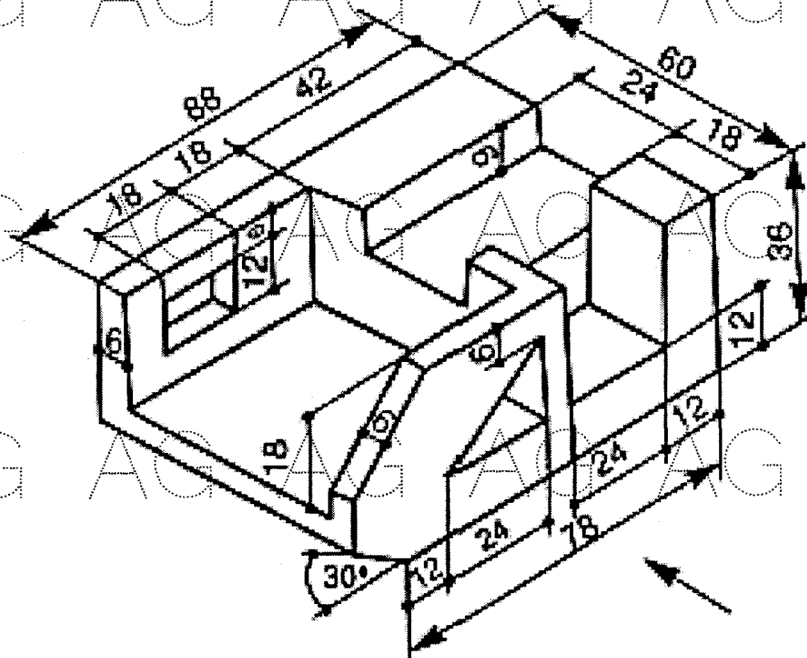10.a) Draw the front view, top view, side view of the following figure 3. All dimensions are in mm.

Figure: 3

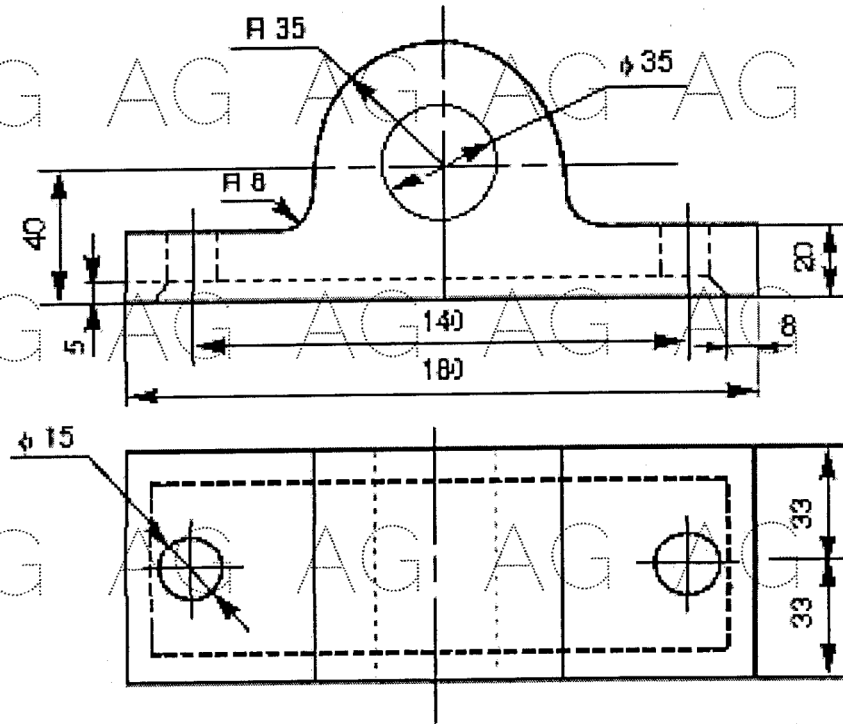b)   Draw the Isometric view of the following figure 4. All dimensions are in mm.   [7+8]

Figure: 4

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