

Code No: 131AF

R16

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech I Year I Semester Examinations, December - 2017

ENGINEERING GRAPHICS

(Common to ME, MCT, MMT, MSNT)

Time: 3 hours

Max Marks: 75

Answer all five questions

All questions carry equal marks

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1.a) Construct a diagonal scale to read up to 0.1 mm, and mark on it a distance of 6.63 cm. Take the scale as 3:1.

b) Inscribe an ellipse in a parallelogram of sides  $150 \times 100$  mm with an inclined angle of  $120^\circ$ . [7+8]

OR

2.a) Draw a parabola passing through three vertices of a triangle of sides 30, 45 and 60 mm. The corner of the triangle common to the 45 and 60 mm sides lies on the axis of parabola. Draw a tangent and normal at a point on the curve 20 mm from the axis.

b) Construct a plain scale of RF = 1:50,000 to show kilometers and hectometers and long enough to measure upto 7 km. Mark a distance of 5.3 km on the scale. [7+8]

3. A divider opened at  $40^\circ$  is placed on HP with its needle ends equidistant from V.P. If the height of hinged end of divider is 60 mm from H.P. and the distance between needle ends is 50 mm, draw the projections of the divider, and determine the a) true lengths of the divider legs, and b) inclinations of the legs with the HP and VP. [7+8]

OR

4. A line AB, 80 mm long, makes an angle of  $30^\circ$  with the VP, and lies in a plane perpendicular to both the HP and VP. Its end A is in the HP, and the end B is in the VP. Draw its projections and show its traces. [15]

5. A pentagonal prism is resting on one of the corners of its base in the HP. The longer edge containing that corner is inclined at 30 degrees to HP and the vertical plane containing that edge is inclined at  $45^\circ$  to the VP. Draw the projections of the solid. [15]

OR

6. A tetrahedron of side 45 mm is resting with one of its faces on the HP. Draw its projections when the edge of the face lying on HP is parallel to and 15 mm in front of VP. [15]

7. A hexagonal pyramid of side of base 40 mm and height of axis 110 mm is resting on one of its inclined vertical surface on H.P. such that its axis remains parallel to the V.P. It is cut by a cutting plane which is inclined at an angle  $45^\circ$  with H.P. and bisecting the axis of the pyramid. Draw front view, sectional top view. [15]

OR

8. A transition piece connects a square pipe of side 25 mm at the top and a circular pipe of 50 mm diameter at the bottom, the axes of both the pipes being collinear. The height of transition piece is 60 mm. Draw its development. [15]

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9. An isometric view of a solid is shown in figure 1 below. Draw the front and top orthographic views of the solid. The dimensions may be assumed in suitable units and in proper proportion to the dimension shown in the figure 1. [15]

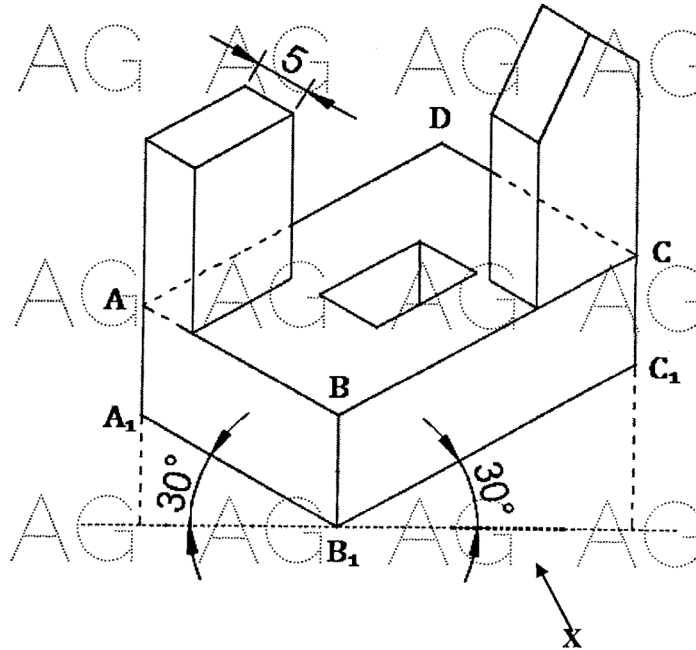


Figure: 1  
OR

10. Draw the isometric view of the casting whose front and top views are shown in figure-2 below. All dimensions shown in the figure 2 are in mm. [15]

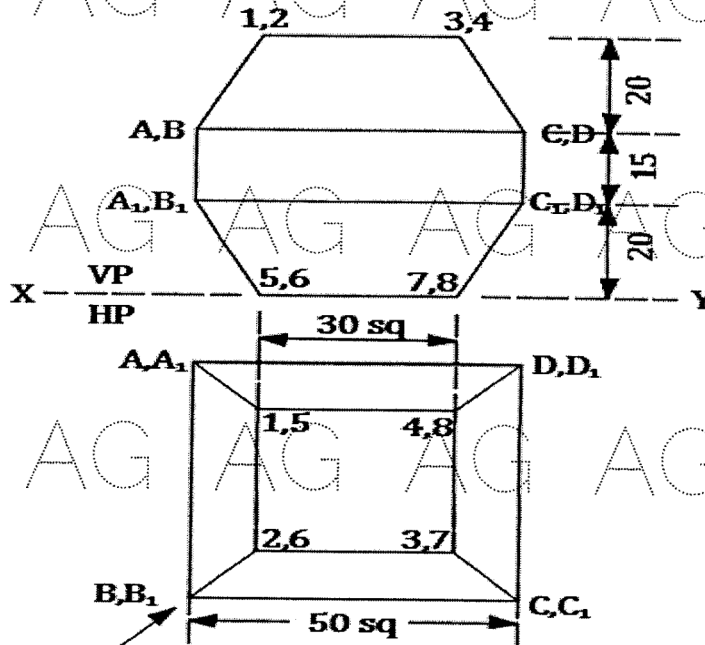


Figure: 2

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