Code No: 121AK

R15

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech I Year Examinations, August - 2018

ENGINEERING DRAWING

(Common to CE, EEE, AE)

Time: 3 hours **Max. Marks: 75**

Answer any five questions

All questions carry equal marks

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1. An area of 144 sq. cm on a map represents an area of 36 sq. km on the field. Find the R.F of the scale for this map and draw a diagonal scale to show kilometers, hectometers and decameters and to measure up to 10 kilometers, indicate on the scale a distance of 7 kilometers, 5 hectometers and 6 decameters. [15]

OR

2. A circle of 60 mm diameter rolls on a horizontal line for half a revolution clockwise and then on a line inclined at 60^0 to the horizontal for another half Clockwise. Draw the curve traced by a point P on the circumference of the circle, taking the bottom most point on the rolling circle as generating point in the initial position. [15]

3. A line AS 100 mm long has its front view inclined at an angle of 45^0 to XY. The point A is in VP and 25 mm above H.P. The length of the front view is 60 mm. Draw the top view of the line and measure its length. Also find the inclination of the line AS to H.P and V.P. [15]

OR

4. A semi circular plate of 80 mm 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. [15]

5. A pentagonal pyramid, base 25 mm side and axis 50 mm long has one of triangular faces in the V.P. and the edge of the base contained by that face makes an angle of 30 degrees with the H.P. Draw its projections. [15]

OR

6. A cylinder with base 40mm diameter and axis 58mm long rests with a point of its base circle on HP. Its axis is inclined at 45^0 to HP and parallel to VP. A section plane perpendicular to both the HP and VP bisects the axis of the cylinder. Draw its front, top and sectional side views. [15]

7. A cube of 50 mm edge is resting on H.P. with a vertical face inclined at 30^0 to the V.P. It is cut by a section plane parallel to the V.P. and 10 mm from the axis. Draw the sectional views of the solid. Also draw the lateral development of the solid after removing the front portion of the solid. [15]

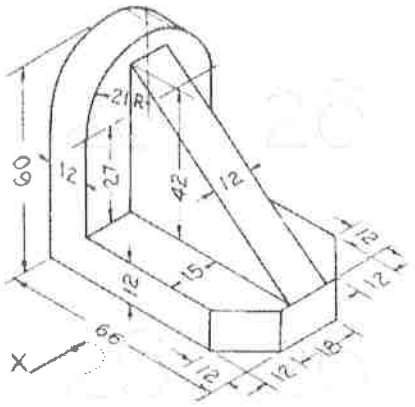
OR

8. A vertical cone, base 75 mm diameter and axis 110 mm long is penetrated by a horizontal cylinder of 50 mm diameter in such way that both the solids envelope an imaginary common sphere and their axes intersect each other. Draw the projections of the solids when their axes lie parallel to the V.P. [15]

9. A rectangular prism of base edges 60 mm × 40 mm and height 80 mm is resting on its broader rectangular face on the ground with the base parallel to the PP. The PP bisects the axis of the object. The station point is on the central line of the object 80 mm in front of the PP and 70 mm above the ground. Draw the perspective projection of the object. [15]

OR

10. Draw the orthographic projections for the pictorial view shown in figure. (All dimensions are in mm.) [15]



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Code No: 121AH

R15

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech I Year Examinations, August - 2018
ENGINEERING DRAWING
(Common to CSE, MIE, PTM)

Time: 3 hours **Max Marks: 75**

Answer any five questions
All questions carry equal marks

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1. Draw the curve traced out by an end of a thin wire unwound from a regular hexagone of side 15 mm, the wire being kept tight. Draw a tangent and normal to the curve at a point 80 mm from the center of the hexagon. [15]

OR

2. An area of 50 sq.km of a field is represented by an area of 150 sq.cm on a map. Construct a diagonal scale to read kilometers, hectometers and decameters. The maximum length to be indicated on the scale is 10 km. Show a distance of 6.48 km on the scale. [15]

3. The end A of a line AB is in the HP and 15 mm in front of the VP. The end B is 50 mm behind the VP and 40 mm below the HP. The distance between the end projectors is 50 mm. Draw the projections of AB and determine its true length and true inclinations with the two planes. [15]

OR

4. Draw the projections of a regular pentagon of 40 mm side having its surface inclined at 30^0 to V.P and side on which it rest on V.P makes an angle of 60^0 with H.P. [15]

5. Draw the projections of a cone with base 45 mm diameter and axis 60 mm long when it is resting on the ground on a point of its base circle with the axis making an angle of 30^0 with HP and 45^0 with VP. [15]

OR

6. A square prism of 32 mm side and 100 mm height is lying on its base on HP such that the edges of the base are equally inclined to VP. The prism is cut by a section plane passing through the mid-point of the axis such that the true shape of section is a rhombus of diagonals of 102 mm and 42 mm. Determine the inclination of section plane with HP. [15]

7. A cone having diameter of base 75 mm axis 75 long is resting on its base on HP. It is cut by a section plane perpendicular to VP and inclined at 40^0 to HP and cutting the axis at a point 40 mm from base. Draw the development of the part of the cone containing the apex. [15]

OR

8. A cylinder of 75 mm diameter standing on its base on HP is completely penetrated by another cylinder of 55 mm diameter with their axes intersecting at right angle. Draw the projections showing the lines of intersection, assuming that the axis of the smaller cylinder is parallel to VP. [15]

9. By using the following views as shown in figure 1, draw the isometric view. All dimensions are in mm. Use a scale of 1:20. [15]

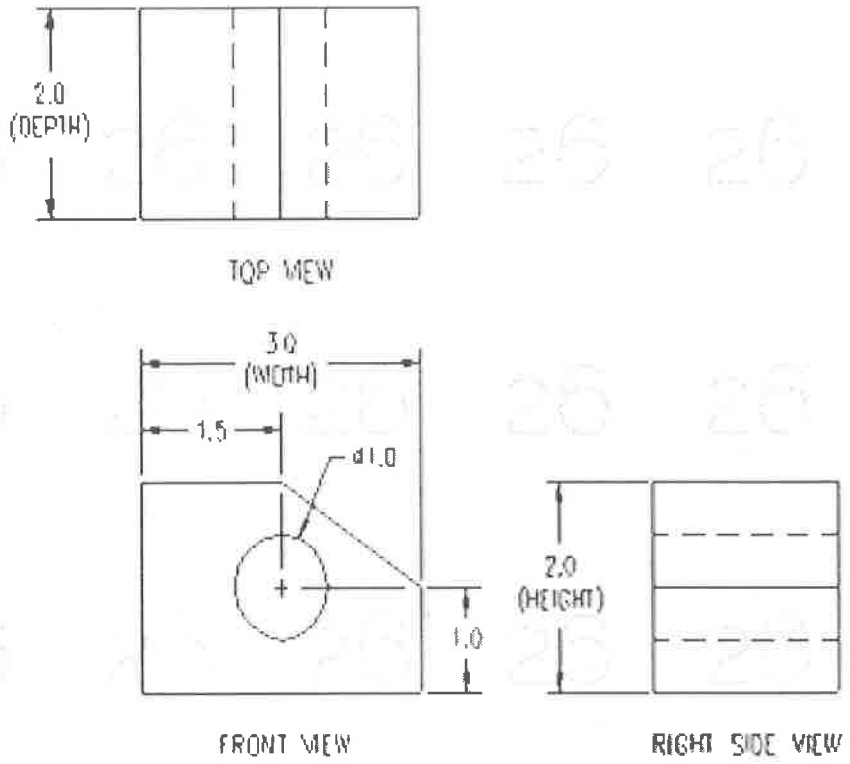

Figure: 1

OR

10. For the following isometric view shown in figure 2, draw a) Front view by seeing from 60 mm width side b) top view c) left side view. All dimensions are in mm. [15]

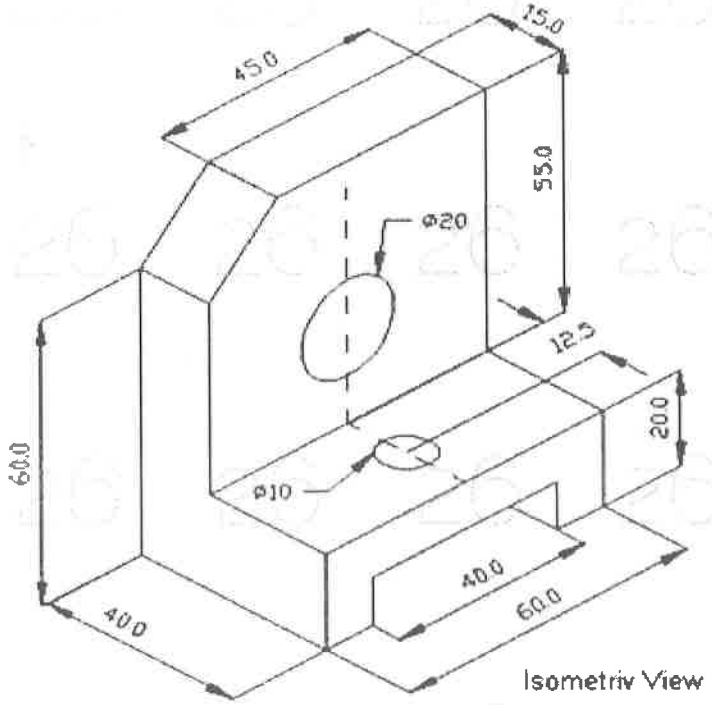

Figure: 2

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech I Year Examinations, August - 2018
ENGINEERING DRAWING
(Common to ECE, EIE, ETM)

Time: 3 hours **Max Marks: 75**

Answer any five questions
All questions carry equal marks

1.a) Construct a diagonal scale to read metres, decimeters and centimeters, long enough to measure up to 6 meters. A line of length 1 cm on the map represents a distance of 0.5 metre. Calculate the R.F and indicate a distance of 242 cms on the scale.

b) Construct an ellipse when the distance of its focus from its directrix is equal to 50mm and the eccentricity is 2/3. Also draw a tangent and a normal to the ellipse. [5+10]

OR

2.a) Construct the path traced out by a point on a circular disc of radius 30mm rolls in a circular path of radius 100mm inside it. Also draw normal and tangent for the curve at any point on it.

b) Draw an involute of a given hexagon of side equal to 20 mm. [10+5]

3.a) Draw the projection of points on a common reference line. Take 20mm distance between the projectors.
i) Point A is 10 mm above HP and 25mm infront of VP.
ii) Point B is 10 mm above HP and on the VP.
iii) Point C is 25 mm below HP and 20 mm behind VP.
iv) Point D is 20 mm below HP and 20 mm infrint of VP.
v) Point E is on both HP and VP.

b) A straight line AB if length 65 mm inclined at 30^0 to both H.P and V.P. End A is in H.P and end B is in V.P. Draw its projections. [5+10]

OR

4.a) A straight line AB of 75 mm long is inclined at 30^0 to HP and 45^0 to VP. The end A is 15mm infront of VP and 20 mm above HP. Draw the projections of the line.

b) A regular pentagonal lamina of 25 mm side has its VT parallel to and 20 mm above XY. One of its side is making an angle of 25^0 with vertical plane and the lamina is perpendicular to VP. Draw its projections. [7+8]

5.a) A square prism of side of base 40mm and axis 70 mm lies in such a way that all the edges of the base equally inclined to HP and the axis is 50 mm from VP. The axis is parallel to both HP and VP. Draw its projections.

b) A hexagonal prism of side of base 25 mm and axis 60 mm rests on a corner of its base in HP with the axis of the prism inclined at 40^0 to HP and parallel to VP. Draw its projections. [7+8]

OR

6. A pentagonal prism, side of base 25mm and axis 50mm long, lies with one of its rectangular faces on HP and its axis is inclined at 30^0 to VP. A section plane perpendicular to HP and parallel to VP cuts the prism into two halves. Obtain its top and sectional front views. [15]

7. A cylinder of diameter 45mm penetrates fully into a cone of base diameter 75mm and altitude 100mm resting on its base on the HP. The axis of the cylinder intersects the axis of the cone at right angles at a distance of 25mm above the base of the cone. The axis of the cylinder is parallel to both the HP and the VP. Draw the curves of intersection of the solids. [15]

OR

8. A hexagonal pyramid of base side 30mm and height 65mm rests on its base on the ground with a base edge parallel to VP. It is cut by a plane perpendicular to VP, inclined at 55^0 to HP and meets the axis at 30mm from the base. Draw the lateral surface development. [15]

9. A hexagonal pyramid of base side 30mm and height 60mm rests on its base on the HP with two of its base edges perpendicular to the VP. It is cut by a plane perpendicular to the VP and inclined at 35^0 to the HP meeting the axis at a point 35 mm above the base of the pyramid. Draw the isometric view of the truncated pyramid. [15]

OR

10. A pentagonal pyramid of 30mm base side and axis height 40 mm is standing on its base on the ground plane with a base side parallel to and 25 mm behind PP. The central plane is 35 mm to the left of the apex and the station point is 40 mm infront of PP and 20 mm above the ground plane. Draw the perspective view of the pyramid. [15]

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R15

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech I Year Examinations, August - 2018
ENGINEERING DRAWING
(Common to ME, IT)

Time : 3 hours **Max Marks: 75**

Answer any five questions
All questions carry equal marks

1.a) Draw two branches of hyperbola when the distance between its foci is 70 mm and the vertices are 15 mm from the foci. Locate the asymptotes and measure the angle between them.

b) An area of 169 sq.cm on a map represents an area of 39 sq.km on the field. Find the RF of the scale, and draw a diagonal scale to show kilometres, hectametres and decametres and to measure upto 10km. Mark a length of 6km, 2hm and 4dm on the scale. [7+8]

OR

2.a) The major and minor axes of an ellipse are 120 mm and 70 mm respectively. Find the foci and draw the ellipse using arc of circle method. Draw tangent and normal to the curve at a point 30mm above the major axis.

b) In a vernier scale the deference between 1VSD and 1MSD was found to be 1cm. RF is 1:100. The scale is to measure a distance of 8 m. Construct a scale and show on it a length of 6.01m. [7+8]

3. A line PQ, inclined at 30^0 to the H.P., has the end P at 20 mm above the H.P. and 10 mm in front of the V.P. The front view of the line is 70 mm long and inclined at 60^0 to the reference line. Draw the projections of the line and determine its true length and inclinations with the principal planes. Also, locate its traces. [15]

OR

4.a) A 90 mm long line PQ, is inclined at 45^0 to the H.P. and 30^0 to the V.P. The end P is 20 mm above the H.P. and in the V.P. Draw its projections and locate its traces.

b) A square plane with a 40 mm side is situated in the V.P. with all the sides equally inclined to the H.P. Draw its projections. [7+8]

5. A pentagonal pyramid, having base with a 40 mm side and a 70 mm long axis, is kept on the H.P. on its base with a side of the base perpendicular to the V.P. It is cut by an A.I.P. such that true shape of the section is a trapezium having one of the parallel sides 15 mm long and other parallel side being largest possible. Draw its front view, sectional top view and true shape of the section. [15]

OR

6. A square prism, having a base with a 40 mm side and a 60 mm axis, is resting on its base on the H.P. with a side perpendicular to the V.P. It is cut by an A. V.P. making 30^0 to the V.P. and contains the axis of the prism. Draw its top view, sectional front view and the true shape of the section. [15]

7. A cylindrical pipe of 30 mm diameter has a similar branch of the same size. The axis of the branch intersects that of the main pipe-at an angle of 45^0. Draw the projections when the two axes lie in a plane parallel to VP and the axis of the main pipe is vertical. [15]

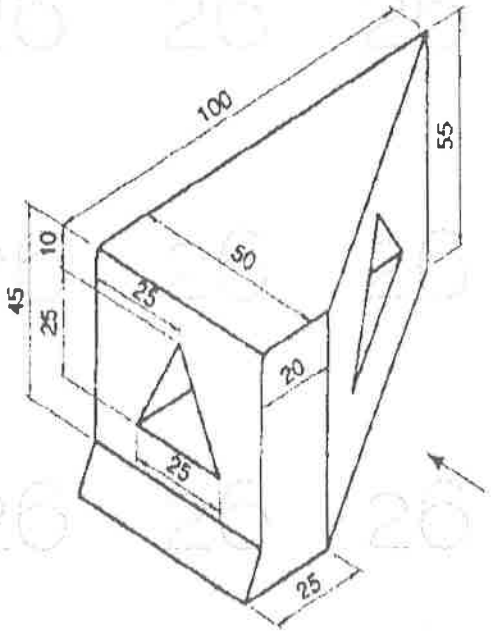
OR

8. A cone, with a 50 mm base diameter and a 60 mm long axis, rests on its base on the H.P. It is cut by a section plane perpendicular to both the H.P. and the V.P. such that its distance from the axis is 18 mm. Draw the development of the large portion. [15]

9. Draw the perspective view of the pentagonal prism, lying on the ground plane on one of its rectangular faces, the axis being inclined at 30^0 to the PP and a corner of the base touching the PP. The station point is 65 mm in front of the PP and lies is the central plane which bisects the axis. The horizon is at the level of the top edge of the prism. Assume that the base side of the prism is 30 mm, axis length is 65 mm. [15]

OR

10. Draw the following views for the object shown in figure. All dimensions are in mm.
a) Front view
b) Top view
c) Left Side view. [15]



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