R15

Code No: 121AJ

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech I Year Examinations, May - 2018

ENGINEERING DRAWING

(Common to ME, IT)

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

Answer all five questions

All questions carry equal marks

\- - -

1.a) Construct a diagonal scale when 1 km distance represents on a drawing with a length of 3 cm to read upto 6 km. Mark on it a length of 3.54 km on this scale.

b) A circle of 4 cm diameter rolls outside a generating circle of 14 cms diameter for one complete revolution without slipping. Trace a point's path on the circumference of circle. [7+8]

OR

2.a) A stone is thrown into the air at an angle of 65^0 to the ground and covers a horizontal distance of 12 m. Trace the path of the stone.

b) Draw involute of square of 2.5 cms side. [7+8]

3.a) A line AB has end A 10 mm above H.P and 20 mm infront of V.P. The other end is 50 mm above HP and 45 mm infront of V.P. The distance between the projections is 50 mm. Draw the projections and find true lengths and true inclinations.

b) A square of 4 cms side has its surface parallel to V.P and perpendicular to H.P such that its diagonal makes an angle of 30^0 to H.P. Draw the projections. [7+8]

OR

4. A circle of 4 cms diameter is resting on a point on its circumference in H.P, such that its surface makes an angle of 35^0 to H.P. and its major diameter in the top view makes an angle of 50^0 with V.P. Draw the projections. [15]

5. A cone of 4 cms diameter, height 6cms is resting on its curved surface in V.P. such that its front view of the axis makes an angle of 45^0 with H.P. Draw the projections. [15]

OR

6. A square pyramid of side 4 cms is resting on its base in H.P, such that one of its sides of the base makes an angle of 30^0 to V.P. It is cut by a section plane perpendicular V.P. inclined at 45^0 to H.P and bisects the axis. Draw the sectional front view, top view and end view. [15]

7. A cone of 4.5 cms diameter 7 cms height is resting on its base in H.P. It is cut by a section plane perpendicular to V.P inclined at 30^0 to H.P and passes through left corner of the base. Draw the development of lateral surface of the cut cone. [15]

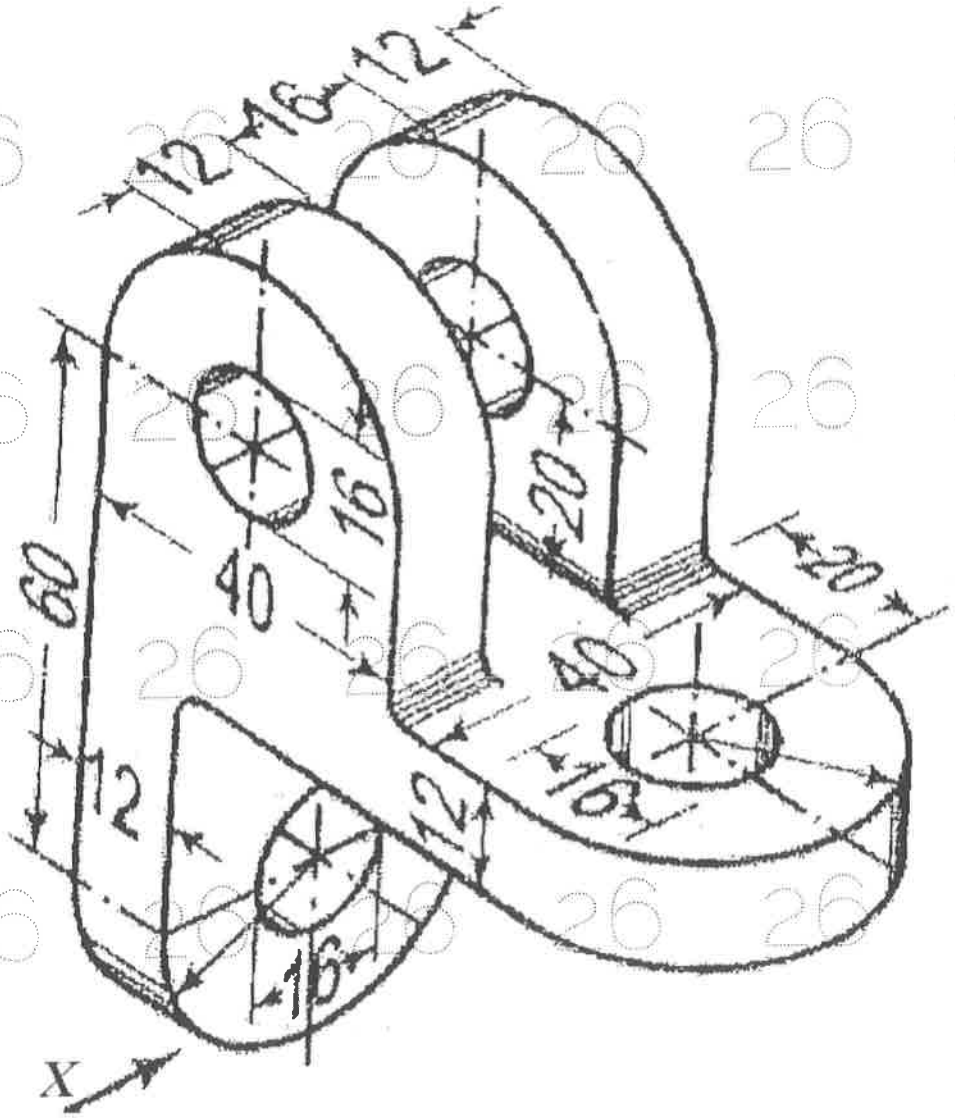
OR

8. A square prism of 5 cm side 12 cms height is resting on its base in H.P such that all the edges of base are equally inclined to V.P. It is penetrated by a square prism of 3.5 cms side horizontally such that the axis is parallel to V.P and all the edges are equally inclined to H.P. The axis of the horizontal prism is 5 mm away from the axis of vertical prism and is located in between V.P and the axis of the vertical prism. The length of horizontal prism is 12 cm. Draw the lines of intersection. [15]

9. A sphere of 4 cms diameter is placed centrally on the top of a frustum of square pyramid of top face side 4.5 cms and bottom face side 6.5 cms with a height of 5 cms. Draw the isometric projection of the combination of solids. [15]

OR

10. Draw front view, top view and side view of the component shown in figure. All dimensions are in mm. [15]



---ooOoo---

R15

Code No: 121AG

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech I Year Examinations, May - 2018

ENGINEERING DRAWING

(Common to ECE, EIE)

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

Answer all five questions

All questions carry equal marks

1.a) Construct a diagonal scale when 1 km distance represents on a drawing with a length of 3 cm to read upto 6 km. Mark on it a length of 3.54 km on this scale.

b) A circle of 4 cm diameter rolls outside a generating circle of 14 cms diameter for one complete revolution without slipping. Trace a point's path on the circumference of circle. [7+8]

OR

2.a) A stone is thrown into the air at an angle of 65^0 to the ground and covers a horizontal distance of 12 m. Trace the path of the stone.

b) Draw involute of square of 2.5 cms side. [7+8]

3.a) A line AB has end A 10 mm above H.P and 20 mm infront of V.P. The other end is 50 mm above HP and 45 mm infront of V.P. The distance between the projections is 50 mm. Draw the projections and find true lengths and true inclinations.

b) A square of 4 cms side has its surface parallel to V.P and perpendicular to H.P such that its diagonal makes an angle of 30^0 to H.P. Draw the projections. [7+8]

OR

4. A circle of 4 cms diameter is resting on a point on its circumference in H.P, such that its surface makes an angle of 35^0 to H.P. and its major diameter in the top view makes an angle of 50^0 with V.P. Draw the projections. [15]

5. A cone of 4 cms diameter, height 6cms is resting on its curved surface in V.P. such that its front view of the axis makes an angle of 45^0 with H.P. Draw the projections. [15]

OR

6. A square pyramid of side 4 cms is resting on its base in H.P, such that one of its sides of the base makes an angle of 30^0 to V.P. It is cut by a section plane perpendicular V.P. inclined at 45^0 to H.P and bisects the axis. Draw the sectional front view, top view and end view. [15]

7. A cone of 4.5 cms diameter 7 cms height is resting on its base in H.P. It is cut by a section plane perpendicular to V.P inclined at 30^0 to H.P and passes through left corner of the base. Draw the development of lateral surface of the cut cone. [15]

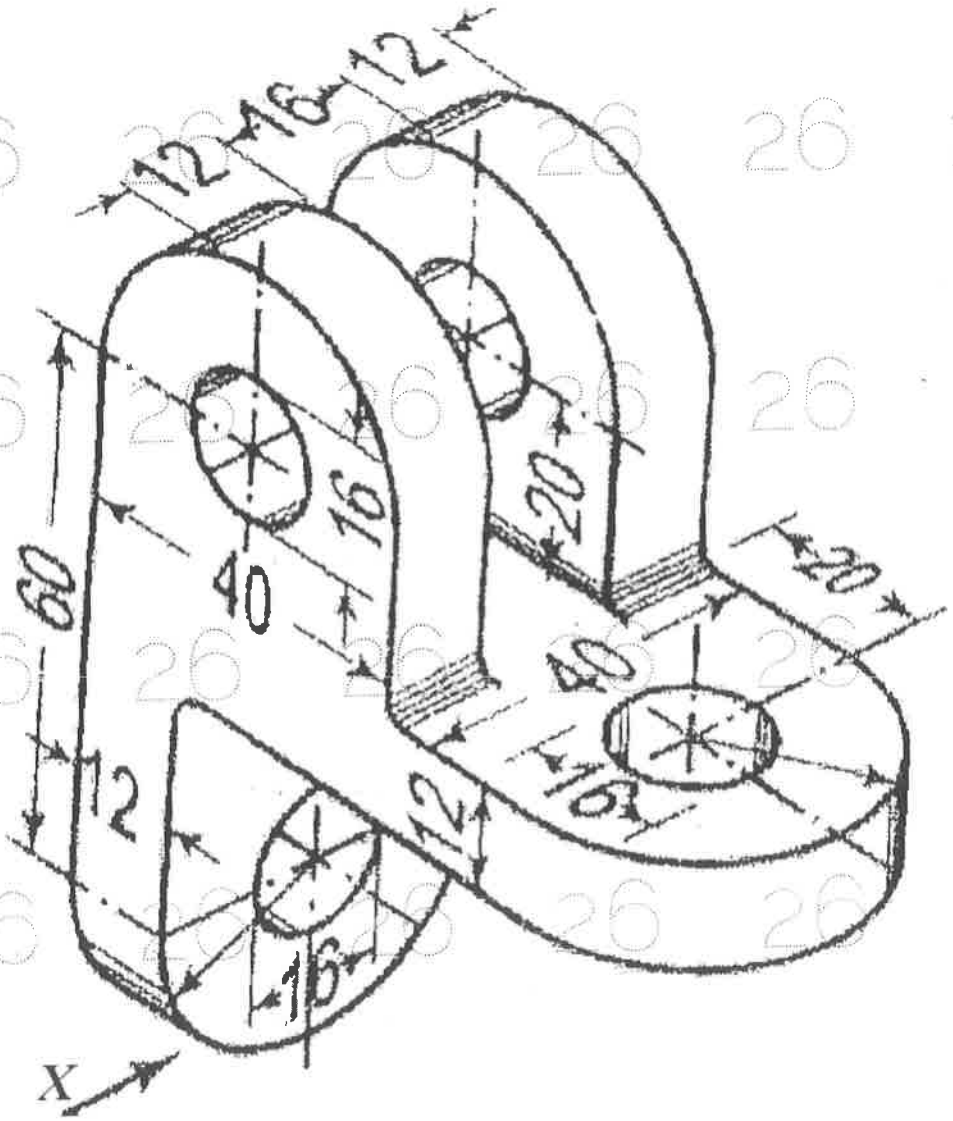
OR

8. A square prism of 5 cm side 12 cms height is resting on its base in H.P such that all the edges of base are equally inclined to V.P. It is penetrated by a square prism of 3.5 cms side horizontally such that the axis is parallel to V.P and all the edges are equally inclined to H.P. The axis of the horizontal prism is 5 mm away from the axis of vertical prism and is located in between V.P and the axis of the vertical prism. The length of horizontal prism is 12 cm. Draw the lines of intersection. [15]

9. A sphere of 4 cms diameter is placed centrally on the top of a frustum of square pyramid of top face side 4.5 cms and bottom face side 6.5 cms with a height of 5 cms. Draw the isometric projection of the combination of solids. [15]

OR

10. Draw front view, top view and side view of the component shown in figure. All dimensions are in mm. [15]



---ooOoo---

R13

Code No: 111AG

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech I Year Examinations, May - 2018

ENGINEERING DRAWING

(Common to ECE, EIE, ETM)

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

Answer all five questions

All questions carry equal marks

\- - -

1.a) Construct a diagonal scale when 1 km distance represents on a drawing with a length of 3 cm to read upto 6 km. Mark on it a length of 3.54 km on this scale.

b) A circle of 4 cm diameter rolls outside a generating circle of 14 cms diameter for one complete revolution without slipping. Trace a point's path on the circumference of circle. [7+8]

OR

2.a) A stone is thrown into the air at an angle of 65^0 to the ground and covers a horizontal distance of 12 m. Trace the path of the stone.

b) Draw involute of square of 2.5 cms side. [7+8]

3.a) A line AB has end A 10 mm above H.P and 20 mm infront of V.P. The other end is 50 mm above HP and 45 mm infront of V.P. The distance between the projections is 50 mm. Draw the projections and find true lengths and true inclinations.

b) A square of 4 cms side has its surface parallel to V.P and perpendicular to H.P such that its diagonal makes an angle of 30^0 to H.P. Draw the projections. [7+8]

OR

4. A circle of 4 cms diameter is resting on a point on its circumference in H.P, such that its surface makes an angle of 35^0 to H.P. and its major diameter in the top view makes an angle of 50^0 with V.P. Draw the projections. [15]

5. A cone of 4 cms diameter, height 6cms is resting on its curved surface in V.P. such that its front view of the axis makes an angle of 45^0 with H.P. Draw the projections. [15]

OR

6. A square pyramid of side 4 cms is resting on its base in H.P, such that one of its sides of the base makes an angle of 30^0 to V.P. It is cut by a section plane perpendicular V.P, inclined at 45^0 to H.P and bisects the axis. Draw the sectional front view, top view and end view. [15]

7. A cone of 4.5 cms diameter 7 cms height is resting on its base in H.P. It is cut by a section plane perpendicular to V.P inclined at 30^0 to H.P and passes through left corner of the base. Draw the development of lateral surface of the cut cone. [15]

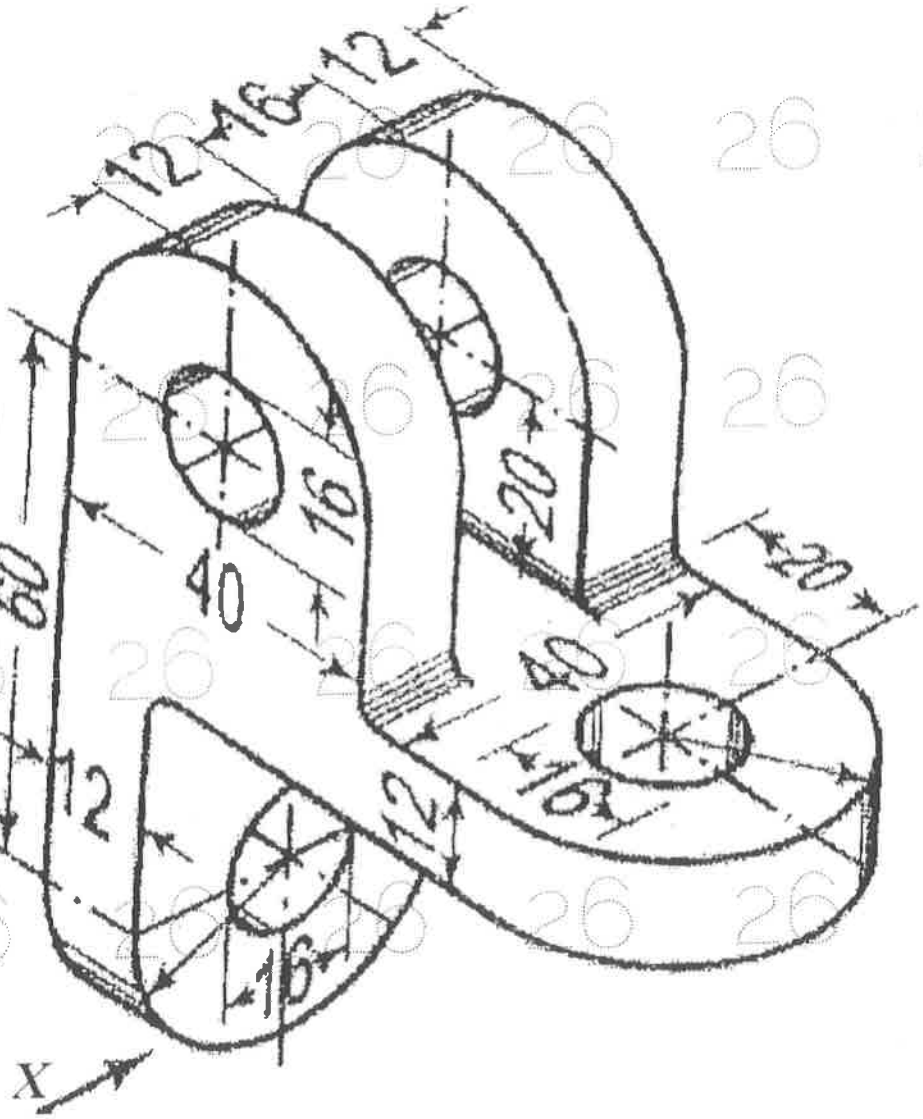
OR

8. A square prism of 5 cm side 12 cms height is resting on its base in H.P such that all the edges of base are equally inclined to V.P. It is penetrated by a square prism of 3.5 cms side horizontally such that the axis is parallel to V.P and all the edges are equally inclined to H.P. The axis of the horizontal prism is 5 mm away from the axis of vertical prism and is located in between V.P and the axis of the vertical prism. The length of horizontal prism is 12 cm. Draw the lines of intersection. [15]

9. A sphere of 4 cms diameter is placed centrally on the top of a frustum of square pyramid of top face side 4.5 cms and bottom face side 6.5 cms with a height of 5 cms. Draw the isometric projection of the combination of solids. [15]

OR

10. Draw front view, top view and side view of the component shown in figure. All dimensions are in mm. [15]



---ooOoo---

R13

Code No: 111AJ

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech I Year Examinations, May - 2018

ENGINEERING DRAWING

(Common to ME, IT, MCT, MMT, AME)

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

Answer all five questions

All questions carry equal marks

1.a) Construct a diagonal scale when 1 km distance represents on a drawing with a length of 3 cm to read upto 6 km. Mark on it a length of 3.54 km on this scale.

b) A circle of 4 cm diameter rolls outside a generating circle of 14 cms diameter for one complete revolution without slipping. Trace a point's path on the circumference of circle. [7+8]

OR

2.a) A stone is thrown into the air at an angle of 65^0 to the ground and covers a horizontal distance of 12 m. Trace the path of the stone.

b) Draw involute of square of 2.5 cms side. [7+8]

3.a) A line AB has end A 10 mm above H.P and 20 mm infront of V.P. The other end is 50 mm above HP and 45 mm infront of V.P. The distance between the projections is 50 mm. Draw the projections and find true lengths and true inclinations.

b) A square of 4 cms side has its surface parallel to V.P and perpendicular to H.P such that its diagonal makes an angle of 30^0 to H.P. Draw the projections. [7+8]

OR

4. A circle of 4 cms diameter is resting on a point on its circumference in H.P, such that its surface makes an angle of 35^0 to H.P. and its major diameter in the top view makes an angle of 50^0 with V.P. Draw the projections. [15]

5. A cone of 4 cms diameter, height 6cms is resting on its curved surface in V.P. such that its front view of the axis makes an angle of 45^0 with H.P. Draw the projections. [15]

OR

6. A square pyramid of side 4 cms is resting on its base in H.P, such that one of its sides of the base makes an angle of 30^0 to V.P. It is cut by a section plane perpendicular V.P. inclined at 45^0 to H.P and bisects the axis. Draw the sectional front view, top view and end view. [15]

7. A cone of 4.5 cms diameter 7 cms height is resting on its base in H.P. It is cut by a section plane perpendicular to V.P inclined at 30^0 to H.P and passes through left corner of the base. Draw the development of lateral surface of the cut cone. [15]

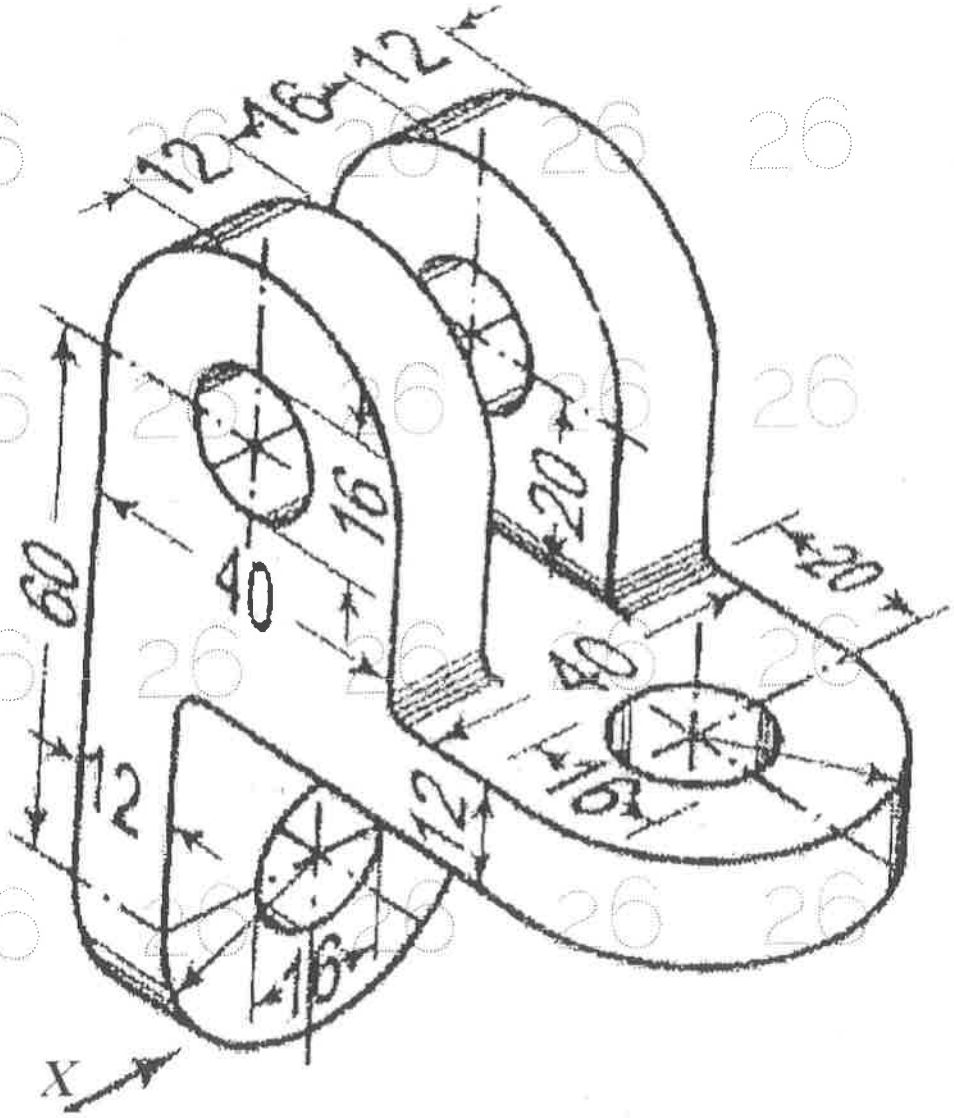
OR

8. A square prism of 5 cm side 12 cms height is resting on its base in H.P such that all the edges of base are equally inclined to V.P. It is penetrated by a square prism of 3.5 cms side horizontally such that the axis is parallel to V.P and all the edges are equally inclined to H.P. The axis of the horizontal prism is 5 mm away from the axis of vertical prism and is located in between V.P and the axis of the vertical prism. The length of horizontal prism is 12 cm. Draw the lines of intersection. [15]

9. A sphere of 4 cms diameter is placed centrally on the top of a frustum of square pyramid of top face side 4.5 cms and bottom face side 6.5 cms with a height of 5 cms. Draw the isometric projection of the combination of solids. [15]

OR

10. Draw front view, top view and side view of the component shown in figure. All dimensions are in mm. [15]



---ooOoo---

R09

Code No: 51011

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech I Year Examinations, May - 2018

ENGINEERING DRAWING

(Electrical and Electronics Engineering)

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

Answer any five questions

All questions carry equal marks

---

1. Draw two branches of hyperbola when the distance between its foci is 80 mm and the vertices are 15 mm from the foci. Locate the asymptotes and measure the angle between them. [15]

2. A line PQ, inclined at 45^0 to the V.P., has a 60 mm long front view. The end P is 10 mm from both the principal planes while the end Q is 45 mm above the H.P. Draw the projections of the line and determine its true length and inclinations with the principal planes. Also, locate its traces. [15]

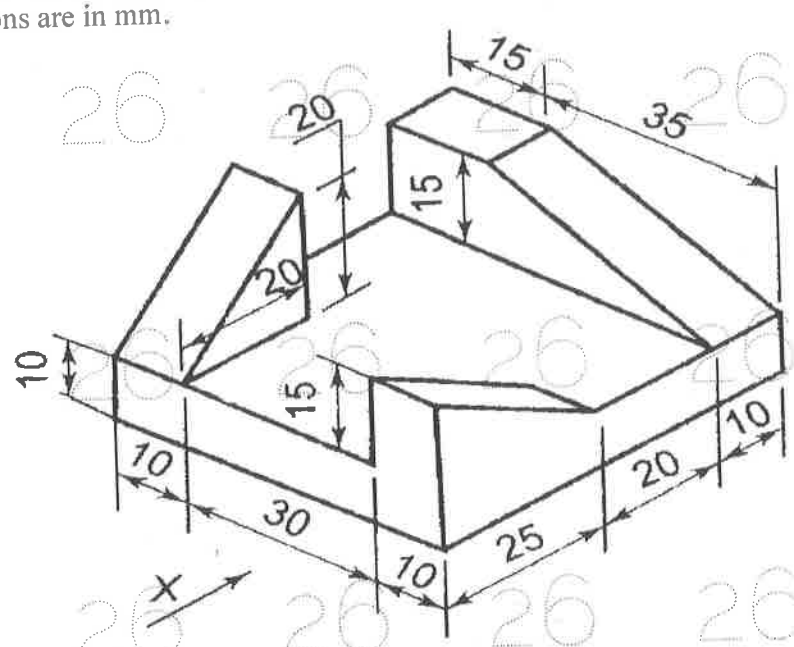
3. A rectangular plate of 50 mm and 30 mm sides rests on the H.P. on the shortest edge, with its surface perpendicular to the V.P., such that the centre of the plate lies 20 mm above the H.P. and 30 mm in front of the V.P. Draw the projections of the plate and determine angle made by it with the H.P. [15]

4. A pentagonal prism, having a base with a 25 mm side and a 60 mm long axis, is resting on a face on the H.P. with its axis making 30^0 with the V.P. It is cut by a horizontal section plane passing through a point 10 mm below the top longer edge. Draw its sectional top view. [15]

5. A cone of base diameter 60 mm and height 90 mm rests on the HP on its base and is penetrated by a horizontal cylinder of diameter 45 mm. The axis of cylinder is 9 mm away from the axis of the cone and at a distance 30 mm above the base of the cone. Draw the projections of the solids showing the curve of intersection between the solids. [15]

6. Draw isometric projection of a frustum of a sphere with a 50 mm diameter, frustum circle with a 35 mm diameter, resting centrally on a cube with a 50 mm side such that the circle of the frustum is horizontal and do not touch the cube. [15]

7. Draw the elevation, top view and side view of the object shown in figure. All dimensions are in mm. [15]



8. A square prism, side of base 50 mm and height 70 mm rests with its base on the ground such that one of its rectangular faces is parallel to and 10 mm behind PP. The station point is 1340 mm in front of PP, 80 mm above the ground plane and lies in a central plane which is 45 mm to the right of the center of the prism. Draw the perspective view of the solid. [15]

---ooOoo---

R09

Code No: 51010

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech I Year Examinations, May - 2018

ENGINEERING DRAWING

(Common to CE, BME)

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

Answer any five questions

All questions carry equal marks

---

1. Draw two branches of hyperbola when the distance between its foci is 80 mm and the vertices are 15 mm from the foci. Locate the asymptotes and measure the angle between them. [15]

2. A line PQ, inclined at 45^0 to the V.P., has a 60 mm long front view. The end P is 10 mm from both the principal planes while the end Q is 45 mm above the H.P. Draw the projections of the line and determine its true length and inclinations with the principal planes. Also, locate its traces. [15]

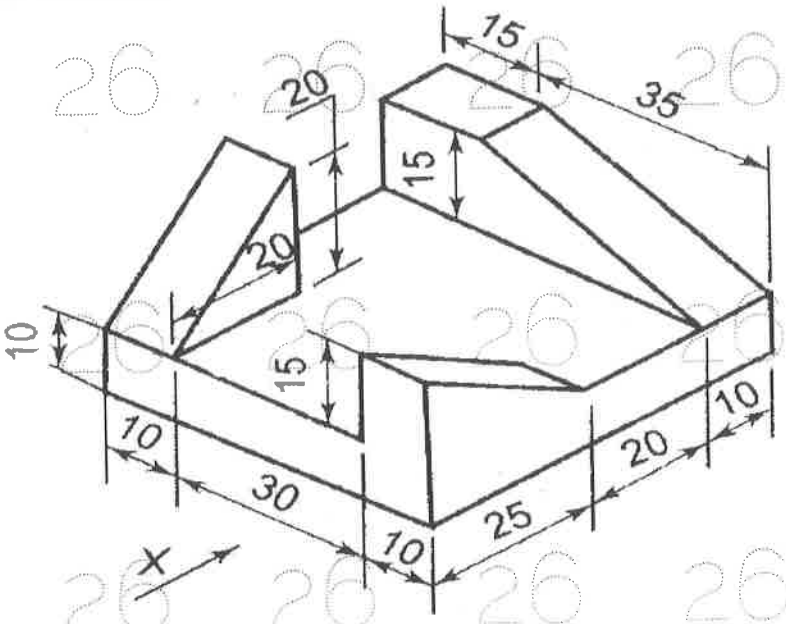
3. A rectangular plate of 50 mm and 30 mm sides rests on the H.P. on the shortest edge, with its surface perpendicular to the V.P., such that the centre of the plate lies 20 mm above the H.P. and 30 mm in front of the V.P. Draw the projections of the plate and determine angle made by it with the H.P. [15]

4. A pentagonal prism, having a base with a 25 mm side and a 60 mm long axis, is resting on a face on the H.P. with its axis making 30^0 with the V.P. It is cut by a horizontal section plane passing through a point 10 mm below the top longer edge. Draw its sectional top view. [15]

5. A cone of base diameter 60 mm and height 90 mm rests on the HP on its base and is penetrated by a horizontal cylinder of diameter 45 mm. The axis of cylinder is 9 mm away from the axis of the cone and at a distance 30 mm above the base of the cone. Draw the projections of the solids showing the curve of intersection between the solids. [15]

6. Draw isometric projection of a frustum of a sphere with a 50 mm diameter, frustum circle with a 35 mm diameter, resting centrally on a cube with a 50 mm side such that the circle of the frustum is horizontal and do not touch the cube. [15]

7. Draw the elevation, top view and side view of the object shown in figure. All dimensions are in mm. [15]



8. A square prism, side of base 50 mm and height 70 mm rests with its base on the ground such that one of its rectangular faces is parallel to and 10 mm behind PP. The station point is 1340 mm in front of PP, 80 mm above the ground plane and lies in a central plane which is 45 mm to the right of the center of the prism. Draw the perspective view of the solid. [15]

---ooOoo---

R09

Code No: 51014

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech I Year Examinations, May - 2018

ENGINEERING DRAWING

(Computer Science and Engineering)

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

Answer any five questions

All questions carry equal marks

---

1. Draw two branches of hyperbola when the distance between its foci is 80 mm and the vertices are 15 mm from the foci. Locate the asymptotes and measure the angle between them. [15]

2. A line PQ, inclined at 45^0 to the V.P., has a 60 mm long front view. The end P is 10 mm from both the principal planes while the end Q is 45 mm above the H.P. Draw the projections of the line and determine its true length and inclinations with the principal planes. Also, locate its traces. [15]

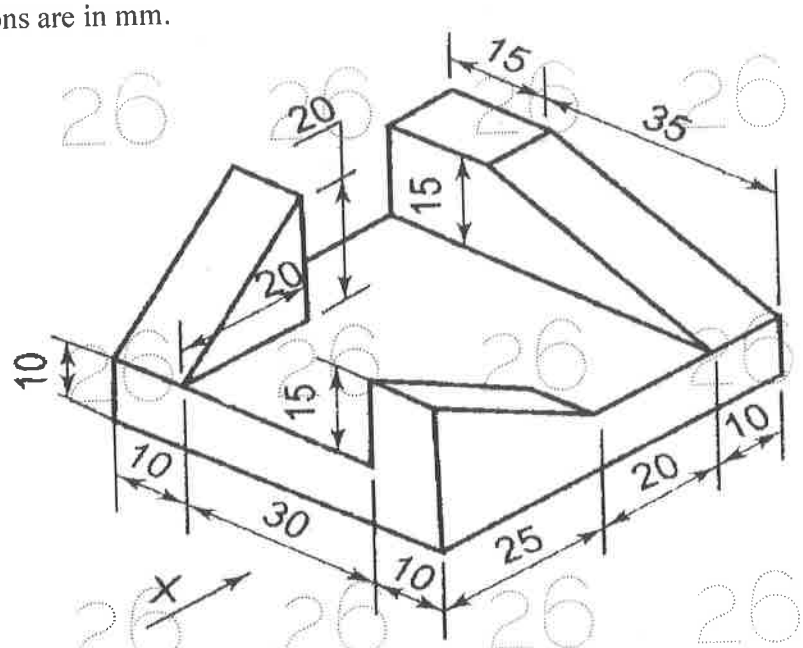
3. A rectangular plate of 50 mm and 30 mm sides rests on the H.P. on the shortest edge, with its surface perpendicular to the V.P., such that the centre of the plate lies 20 mm above the H.P. and 30 mm in front of the V.P. Draw the projections of the plate and determine angle made by it with the H.P. [15]

4. A pentagonal prism, having a base with a 25 mm side and a 60 mm long axis, is resting on a face on the H.P. with its axis making 30^0 with the V.P. It is cut by a horizontal section plane passing through a point 10 mm below the top longer edge. Draw its sectional top view. [15]

5. A cone of base diameter 60 mm and height 90 mm rests on the HP on its base and is penetrated by a horizontal cylinder of diameter 45 mm. The axis of cylinder is 9 mm away from the axis of the cone and at a distance 30 mm above the base of the cone. Draw the projections of the solids showing the curve of intersection between the solids. [15]

6. Draw isometric projection of a frustum of a sphere with a 50 mm diameter, frustum circle with a 35 mm diameter, resting centrally on a cube with a 50 mm side such that the circle of the frustum is horizontal and do not touch the cube. [15]

7. Draw the elevation, top view and side view of the object shown in figure. All dimensions are in mm. [15]



8. A square prism, side of base 50 mm and height 70 mm rests with its base on the ground such that one of its rectangular faces is parallel to and 10 mm behind PP. The station point is 1340 mm in front of PP, 80 mm above the ground plane and lies in a central plane which is 45 mm to the right of the center of the prism. Draw the perspective view of the solid. [15]

---ooOoo---

R07

Code No: Z0125

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech I Year Examinations, May - 2018

MATHEMATICS-I

(Common to EEE, ME, ECE, CSE, CHEM, IT, BT)

Time: 3 hours Max. Marks: 80

Answer any five questions

All questions carry equal marks

1.a) Define Exact and Integrating of differential equation.

b) Solve $(3xy-2y^2)dx+(x^2-2xy)dy$.

c) A body is heated to 105^0C and placed in air at 15^0C. After 1 hr its temperature is 60^0C. How much additional time is required for it to cool to 37^0C? [16]

2. Solve $(D^2-4D+3)y=e^{-x}\sin^2 x+x^2+1$. [16]

3.a) State Rolle's theorem and explain its geometrical interpretation.

b) Examine the extreme value of $x^3+y^3=3axy,\ a>0$. [8+8]

4.a) Trace the curve of hypocycloid $x^{\frac{2}{3}}+y^{\frac{2}{3}}=a^{\frac{2}{3}},\ a>0$.

b) Find the radius of curvature $r=a(1+\cos\theta)$ for any value of θ. [8+8]

5.a) Find the area of the region R which is bounded by x-axis and x = 2a and the curve $x^2=4ay$.

b) Evaluate $\iiint(x^2+y^2+z^2)dxdydz$ taken over the volume enclosed by the sphere $x^2+y^2+z^2=1$ by transforming into spherical polar coordinates. [8+8]

6.a) Test the convergence of the series $\sum_{n=0}^{\infty}(-1)^n n^{\frac{1}{4}}$.

b) Test the convergence of the series $\frac{x}{1.2}+\frac{x^2}{2.3}+\frac{x^3}{3.4}+\frac{x^4}{4.5}+\ldots$ [8+8]

7. Verify Stokes theorem for $F=(x^2+y^2)i-2xyj$ taken around a rectangle bounded by the lines x = a, x= -a, y = 0 and y = b. [16]

8.a) Find Laplace transform of $\frac{1-e^t}{t}$.

b) Solve the integral equation $f(t)=at+\int_0^t f(u)\sin(t-u)du,\ t>0$, using Laplace transformation. [8+8]

---ooOoo---