SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR
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QUESTION BANK
Subject Code : Engineering Graphics(19ME0302) **Course & Branch :** B.Tech – ALL
Year & Sem : I – B.Tech & I –Sem **Regulation :** R19

UNIT – I

1 Construct a hyperbola with the distance between the focus and directrix as 50 mm [12M]
   and eccentricity as 3/2. Also, draw normal and tangent to the curve at a point 30 mm
   from the directrix.

2 Draw an epi-cycloid of a circle of 40 mm diameter, which rolls on another circle of [12M]
   120 mm diameter for one revolution clock wise. Draw a tangent and normal to it at a
   point 90 mm from the center of the directing circle.

3 (a) Draw an involute of a circle of 40 mm diameter. Also, draw a normal and a [6 M]
   tangent at a point 95 mm from the centre of the circle.
   (b) Draw an involute of a hexagon 20 mm side. Also, draw a normal and a tangent at [6 M]
   a point 100 mm from the centre of the hexagon.

4 Construct an ellipse when the distance between the focus and the directrix is 50 mm [12M]
   and the eccentricity is 2/ 3. Draw tangent and normal at a point 40 mm from the
   directrix.

5 Draw a hypo cycloid of circle of 40 mm diameter which rolls inside another circle of [12M]
   160 mm diameters for one revolution counter clock wise. Draw a tangent and a
   normal to each at point 65 from the centre of the directing circle.

6 Draw a parabola having a distance of 50 mm between the focus and directrix. Draw [12M]
   a normal and tangent to the parabola at a point 35 mm from the focus.

7 Construct a cycloid, given the diameter of the generating circle as 40 mm. Draw the [12M]
   tangent to the curve at a point on it, 35 mm from the line.

8 (a) A thread of length 165 mm is wound round a circle of 40 mm diameter. Trace the [6 M]
   path of end point of the thread.
   (b) Draw an involute of a triangle 20 mm side; draw a normal and a tangent at a [6 M]
   point 60 mm from the centre of the triangle.

9 Construct a rectangular hyperbola when a point P is at distance of 18 mm and 34 mm [12M]
   from two asymptotes. Also draw a tangent to the curve at a point 20 from an
   asymptote.

10 (a) The major and minor axes of ellipse are 120 mm and 80 mm. Draw the ellipse by [6 M]
   using concentric circles method.
   (b) Construct a parabola with base 60 mm and length of the axis 40 mm. Draw a [6 M]
   tangent to the curve at point 20 mm from the base using rectangular method.

UNIT – II

1. Draw the projections of the following points, keeping the distance between the projectors as 25mm on the same reference lines.
   A – 20 mm above HP and 30 mm in front of VP
   B – 20 mm above HP and 30 mm behind VP
   C – 20 mm below HP and 30mm behind VP
   D – 20 mm below HP and 30 mm in front of VP
   E – On HP and 30mm in front of VP
   F – On VP and 20 mm above HP
   G – Lying on both HP and VP [12M]

2. A point A is 15 mm above HP and 20 mm in front of VP. Another point B is 25mm behind VP and 40 mm below HP. Draw the projections of A and B, Keeping the distance between the projectors equal to 90 mm. Draw straight lines , joining their top views and front views. [12M]

3. Two point A and B are on H.P, the point A being 30 mm in front of V.P, while B is 45 mm behind V.P. The line joining their top views makes an angle of 45^0 with XY. Find the horizontal distance between two points. [12M]

4. A line AB of 100 mm long is inclined at an angle 30^0 to H.P and 45^0 to V.P. A point A is 15 mm above H.P and 20 mm in front of V.P .Draw the projections of the line. [12M]

5. A line AB of 80 mm long as its end A 15 mm from both H.P and V.P. The other end B is 40 mm above H.P and 50 mm in front of V.P. Draw the projections of the line and determine the inclination of the line with H.P and V.P. [12M]

6. A line AB of 70 mm long, as its end A at 10 mm above H.P and 15 mm in front of V.P. Its front view and top view measures 50 mm and 60 mm. Draw the projections of the line and determine its inclination with H.P and V.P. [12M]

7. A semi-circular plate of 80 mm diameter , has its straight edge on V.P and inclined at 30^0 to H.P , while the surface of the plate is inclined at 45^0 to V.P .Draw the projections of the plate. [12M]

8. A regular pentagon of 30 mm side is resting on one of its edges on H.P, which is inclined at 45^0 to V.P. Its surface is inclined at 30^0 to H.P. Draw its projections. [12M]

9. A Thin 30^0-60^0 set- square has its longest edge (diagonal) on H.P and inclined at 30^0 to V.P. Its surface makes an angle of 45^0 with H.P. Draw the projections, choosing suitable size for the set -square. [12M]

10. A square plane of side 40mm has its surface parallel to and 20 mm above HP. Draw its projections when

    a).side is parallel to VP

    b).a side inclined at 30^0 to VP.

    c).all sides are equally inclined to VP

UNIT - III

1. Draw the projections of a hexagonal prism of side of base 25 mm and axis 60 mm long, when it is resting on one of its corners of the base on H.P. The axis of the solid is inclined at 45^0 to H.P. [12M]

2. A cone of base diameter 50 mm and axis 60mm has a generator in the VP and the axis is parallel to HP. Draw its projections [12M]

3. Draw the projections of a cylinder of 40 mm diameter and axis 60 mm long, when it is lying on H.P, with its axis inclined at 45^0 to H.P and parallel to V.P. [12M]

4. A hexagonal prism side of base 25 mm and axis 50 mm long resting with one of its base corner on H.P such that its base makes an angle of 60^0 to H.P and its axis parallel to V.P. Draw its projections. [12M]

5. A hexagonal pyramid side of base 25 mm and axis 50 mm long rest with one of its edges of base on H.P and its axis is inclined at 30^0 to H.P and parallel to V.P. Draw the projections. [12M]

6. A square prism of base side 40mm and height 80mm has its base on HP and its faces are equally inclined to VP .Its cut by a plane perpendicular to VP inclined at 60° to HP passing through a point on the axis 55 mm above the HP. Draw its SFV,SSV,STV,TS. [12M]

7. A Cylinder of base 40 mm and 60mm length having its axis vertical is cut by section plane perpendicular to VP inclined at 45° to HP and intersecting the axis at 32 mm above the base. Draw its SFV,SSV,STV,TS. [12M]

8. A hexagonal prism of side of base 25 mm and axis 60 mm long, is resting on its base on H.P such that ,an edge of the base parallel to V.P. It is cut by a section plane, inclined at 45^0 to V.P and 10 mm away from the axis. Draw its SFV,SSV,STV,TS. . [12M]

9. A square pyramid of base 30mm and axis 65 mm long, is resting with its base on H.P and all the edges of the base are equally inclined to VP. It's cut by sectional plane perpendicular to VP and inclined 45° to HP bisecting the axis. Draw its SFV,SSV,STV,TS. [12M]

10. A cone with base 60 mm diameter and axis 75 mm long, is resting on its base on H.P. It is cut by a section plane parallel to H.P and passing through the mid-point of the axis. Draw the projections of the cut solid. [12M]

UNIT – IV

1. A hexagonal prism side of base 30 mm and axis 75 mm long ,is resting on its base on H.P such that, a rectangular face is parallel to V.P. It is cut by a section plane, perpendicular to V.P and inclined at 30^0 to H.P. The section plane is passing through the top end of an extreme lateral edge of the prism. Draw the development of the lateral surface of the cut prism. [12M]

2. A cylinder of base diameter 40 mm and axis 55 mm long is resting on its base on HP.Its cut by a section plane perpendicular to VP and inclined at 45° to HP.The section plane is passing through the top end of an extreme generator of the cylinder.Draw the development of lateral surface of the cut cylinder. [12M]

3. A pentagonal pyramid of side of base 30 mm and 60 mm long, is resting on its base on H.P, with an edge of the base parallel to V.P. draw the development of the lateral surface of the pyramid. [12M]

4. A square pyramid with side of base 30 mm and axis 50 mm long ,is resting on its base on H.P with an edge of the base parallel to V.P.it is cut by a section plane, perpendicular to V.P and inclined at 45^0 to H.P. The section plane is passing through the mid- point of the axis. Draw the development of the surface of the cut pyramid. [12M]

5. A square prism side of base 40 mm and axis 80 mm long ,is resting on its base on H.P such that, a rectangular face of it is parallel to V.P. Draw the development of the prism. [12M]

6. A cylinder of 80 mm diameter and 100 axis is completely penetrated by a cone of 80 mm diameter and 120 mm long axis horizontally. Both the axes intersect and bisect each other. Draw the projections. [12M]

7. A vertical square prism of base 50 mm side , is penetrated by a horizontal square prism of base 40 mm side such that, the axis interest. The axis of the horizontal prism is parallel to V.P and the faces of the both the prisms are equally inclined to V.P. Draw the projections of the two prisms, showing the lines of intersection. [12M]

8. A vertical cylinder of 50 mm diameter and 70 mm axis is completely penetrated by another horizontal cylinder of 40 mm diameter and 70mm axis. Both axis intersect and bisect each other. Draw the projections showing curves of intersection. [12M]

9. A vertical square prism of base 30 mm side and 70 mm axis is penetrated by a horizontal square prism of base 25 mm side and 70mm axis. Both the axes intersects and bisects each other. All the faces of the prisms are equally inclined to V.P. Draw the projections showing the curves of intersection. [12M]

10. A cylinder 50mm diameter and 70mm axis is completely penetrated by a square prism of side 25mm and axis 70 mm horizontally. Both the axis intersect and bisect each other.All faces of the prism are equally inclined to HP.Draw the projections showing the curves of intersection. [12M]


ENGINEERING GRAPHICS

<u>UNIT – V</u>

1. Draw the isometric view of a pentagonal prism of base side 30 mm and axis 60 mm. The prism rests on its base on the HP with a vertical face perpendicular VP. [12M]

2. Draw the isometric view of a pentagonal pyramid side of base 25 mm and axis 60 mm long. The pyramid is resting on its base on H.P, with an edge of the base away from the observer and parallel to V.P. [12M]

3. Draw the isometric view of a hexagonal prism, with side of base 25 mm and axis 60 mm long .The prism is resting on its base on H.P, with an edge of the base parallel to V.P. Use box method. [12M]

4. Draw three views of the blocks shown pictorially in figure according to first angle projection. [12M]
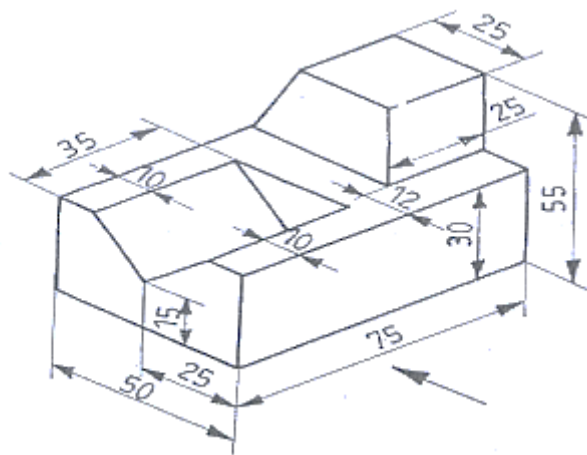
5. Draw three views of the blocks shown pictorially in figure according to first angle projection. [12M]
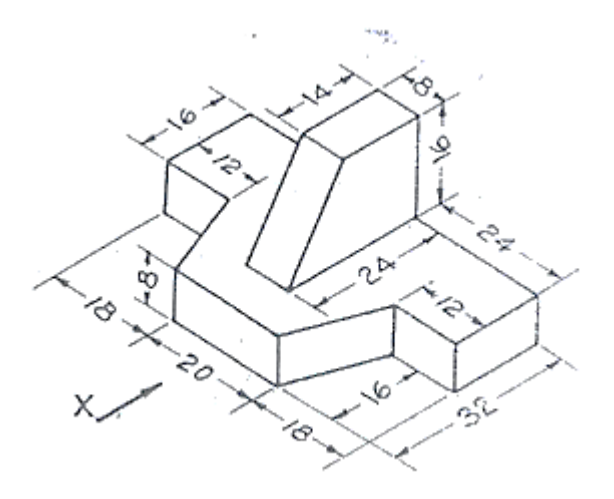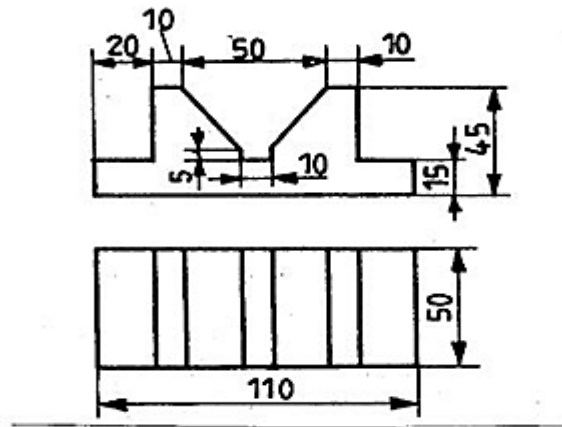

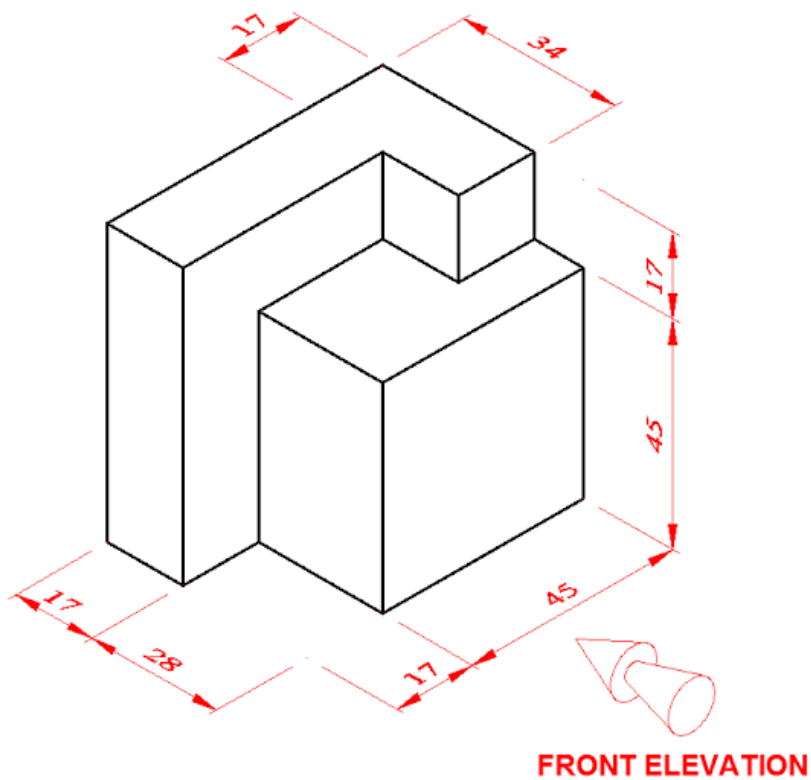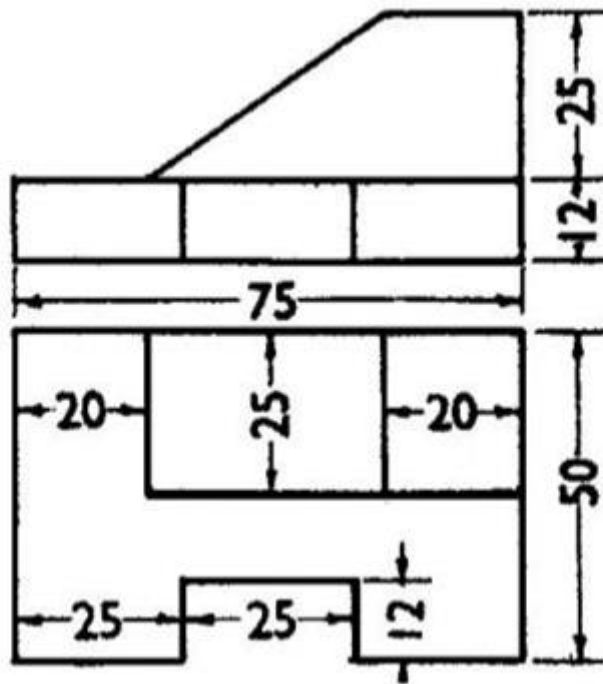6. Draw three views of the blocks shown pictorially in figure according to first angle projection. [12M]
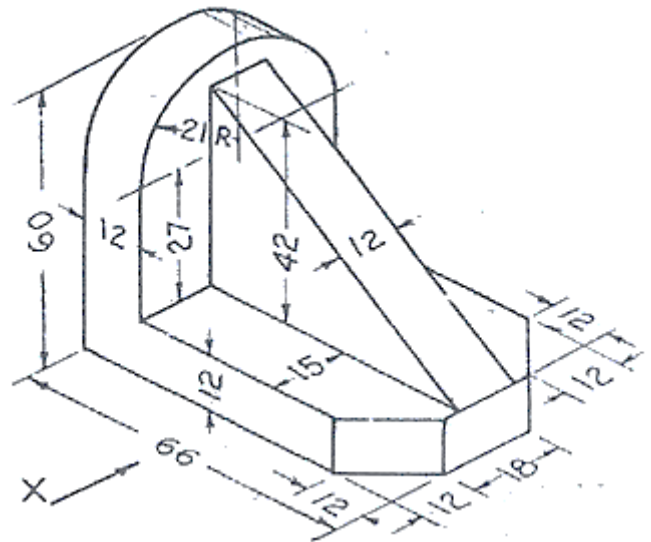
7   Draw the isometric view of the following sketch.   [12M]

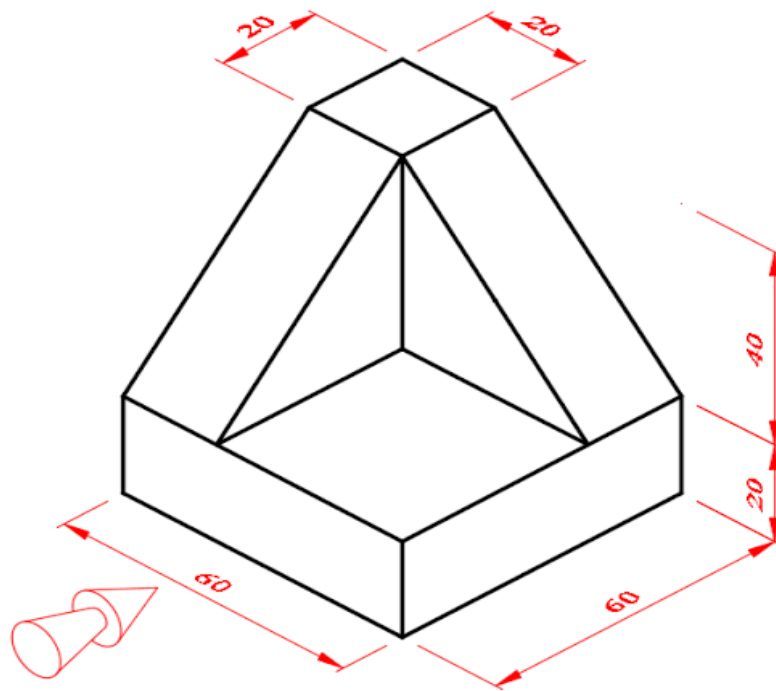8   Draw the isometric view of the following sketch.   [12M]

FRONT ELEVATION

9. Draw the three views of the above diagram.   [12 M]

10. Draw the three views of the below diagram.   [12 M]

20   20

40

20

60   60

FRONT ELEVATION

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