Hall Ticket No: ☐☐☐☐☐☐☐☐☐☐   **Question Paper Code :**

ANIL NEERUKONDA INSTITUTE OF TECHNOLOGY & SCIENCES
(AUTONOMOUS)
B. Tech I Semester Regular Examinations November - 2015
(Regulations: R15)
ENGINEERING DRAWING

Date: **Time: 3 hours**   **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the question must be answered in one place only

Unit-1

1. a) To construct a regular pentagon, given length of its side is 30 mm by using the general method. .
   [4 Marks]
   b) Draw an ellipse by 'concentric circles method' and find the length of the minor axis with the help of the following data: (i) Major axis = 100 mm. (ii) Distance between foci 80 mm.   [8 Marks]

OR

2. a) To draw an involute of a given square of its side is 25 mm.   [4Marks]
   b) A circle of 40 mm diameter rolls inside another circle of 160 mm diameter for one revolution. Draw the hypocycloid. Also draw a tangent and normal at any point on the curve.   [8Marks]

Unit-2

3. a) A point P is 50 mm from both the reference planes. Draw its projections in all possible positions.
   [6 Marks]
   b) A point at 25mm above the reference line XY is the front view of two points A and B. The top view of A is 40mm behind V.P. and the top views of B is 50mm in front of V.P. Draw the projections of the points and state their positions relative to the planes of projections and the quadrants in which they lie.   [6 Marks]

OR

4. a) A line CD 30 mm long is perpendicular to V.P. and parallel to H.P. Its end C is 5 mm in front of V.P. and the line is 10mm above H.P. Draw the projections of the line.   [4 Marks]
   b) A line CD 80mm long is inclined at an angle of 30° the H.P. and 45° to V.P. The point C is 20mm above H.P. and 30mm in front of V.P. Draw the projections of the straight line.   [8 Marks]

Unit-3

5. a) A regular pentagon of 25 mm side has one side on the ground. Its plane is inclined at 45⁰ to the H.P. and perpendicular to the V.P. Draw it projections.   [4 Marks]
    b) A semi circular plate of 80mm diameter has its straight edge in the VP and inclined at 60⁰ to the H.P. the surface of the plate makes an angle of 30⁰ with the VP. Draw its projections .   [8 Marks]

OR

6. a) A thin 30⁰ - 60⁰ set – square has its longest edge in the V.P. and inclined at 30⁰ to the H.P. Its surface makes an angle of 45⁰ with the V.P. Draw its projections.   [5 Marks]
    b) Draw the projections of a regular hexagon of 25mm side, having one of its sides in the H.P. and inclined at 60⁰ to the V.P. and its surface making an angle of 45⁰ with the H.P.   [7 Marks]

Unit-4

7. a) Draw the projections of a triangular prism, base 40 mm side and axis 50 mm long, resting on one of its bases on the H.P. with a vertical face perpendicular to the V.P.   [3 Marks]
    b) Draw the projections of a pentagonal prism, base 25mm side and axis 50mm long, resting on one of its rectangular faces on the H.P., with the axis inclined at 45⁰ to the V.P.   [9 Marks]

OR

8.   A pentagonal pyramid, base 25 mm side and axis 50 mm long has one of its triangular faces in the V.P. and the edge of the base contained by that face makes an angle of 30⁰ with the H.P. Draw its projections.
                                                                                                          [12 Marks]

Unit-5

9. a) Draw the isometric view of a square prism, side of the base 20 mm long and the axis 40 mm long, when its axis is (i) vertical and (ii) horizontal.   [6Marks]
    b) Draw the isometric projection of the frustum of a cone of height 100 mm and the diameters 50 mm and 80mm.   [6 Marks]

OR

10. a) Draw the isometric view of a cylinder, base 40 mm diameter and axis 55 mm long when its axis is vertical.   [4 Marks]
    b) A square pyramid of 40 mm side and height 50mm rests centrally on a square block of 60 mm edges and 20 mm thick. Draw the isometric projections of the composite solid with the edges of the two blocks equally inclined to each other.   [8 Marks]

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Unit-1

1. a) Construct an ellipse of major axis 100mm and minor axis 60mm using Arcs of circles method. Draw a tangent and normal at a point 20mm from any focus   [8 Marks]
   b) A ball thrown up in the air reaches a maximum height of 45 metres and travels a horizontal distance of 75 metres. Trace the path of the ball, assuming it to be parabolic.   [4 Marks]

OR

2. a) A fountain jet discharges water from ground level at an inclination of 45° to the ground. The jet travels a horizontal distance of 7.5 metre from the point of discharge and falls on the ground. Trace the path of the jet. Name the curve.   [4 Marks]
   b) Draw an involute of a circle of 50 mm diameter. Also draw a normal and tangent to the curve at any point.
   [8 Marks]

Unit-2

3. a) A point P is 15mm above the H.P. and 20mm in front of the V.P. Another point Q is 25mm behind the V.P. and 40mm below the H.P. Draw projections of P and Q keeping the distance between their projectors equal to 90mm. Draw straight lines joining.   [6 Marks]
   i) Their top view and
   ii) Their front views.

   b) The top view of a 75 mm long line AB measures 65 mm, while the length of its front view is 50 mm. Its one end A is in the H.P. and 12 mm in front of the V.P. Draw the projections of AB and determines its inclinations with the H.P. and the V.P.   [4 Marks]

OR

4. a) Two points A and B are in the H.P. The point A is 30 mm in front of the V.P., while B is behind the V.P. The distance between their projectors is 75 mm and the line joining their top views makes an angle of 45° with xy. Find the distance of the point B from the V.P.   [4 Marks]
   b) Draw the Projections of a line AB, 90mm long, its midpoint M being 50mm above the H.P. and 40mm in front of the V.P. The end A is 20mm above the H.P. and 10mm in front of the V.P. Show the inclinations of the line with the H.P. and the V.P.   [8 Marks]

Unit-3

5. a) Draw the projections of a rhombus having diagonals 125 mm and 50 mm long, the smaller diagonal of which is parallel to both the principal planes while the other is inclined at 30° to the H.P.   [6 Marks]

    b) A 60⁰ set-square of 125 mm longest side is so kept that the longest side is in the H.P. making an angle of 30⁰ with the V.P. and the setsquare itself inclined at 45⁰ with the H.P. Draw the projections of the set square.
[6 Marks]

OR

6. a) A rectangular plane surface of size 50 mm x 20 mm is positioned in the first quadrant and is inclined at an angle of 60° with the H.P. and 30° with the V.P. Draw its projections.   [4 Marks]

    b) A circular plate of negligible thickness and 50mm diameter appears as an ellipse in the front view, having its major axis 50mm long and minor axis 30mm long. Draw its top view when the major axis of the ellipse is horizontal.   [8 Marks]

Unit-4

7. a) Draw the projections of a hexagonal pyramid, with side of base 30 mm and axis 70 mm long, which is resting with a slant face on H.P. such that, the axis is parallel to V.P.   [6 Marks]

    b) A Cylinder with 40 mm base diameter is resting on the HP with its axis inclined at 60° to HP and parallel to VP having 60 mm height. Draw its front view and top view. Draw the projections of the solid.
[6 Marks]

OR

8. Draw the projections of a cube of side 25 mm, resting on H.P. on one of its corners, with a solid diagonal perpendicular to V.P.   [10 Marks]

Unit-5

9. a) Draw the isometric view of a pentagonal pyramid, with 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) parallel to V.P.
[4 Marks]

    b) A cone diameter of base 45 mm and height 50 mm is mounted centrally on the top of a square slab of thickness 10 mm & side 65 mm. Draw the isometric projection of the combined solid.   [8 Marks]

OR

10. a) 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.   [4 Marks]

    b) Draw the Isometric Projection of a sphere of radius 20 mm resting centrally on the top of a square prism of base side 70 mm and height 100 mm.   [8 Marks]