



INDIAN SCHOOL MUSCAT
SENIOR SECTION
DEPARTMENT OF ENGINEERING GRAPHICS
CLASS XI
TOPIC – CONIC SECTIONS
WORKSHEET

1. Construct an ellipse of major axis 110 mm and minor axis 70 mm by intersecting arc method.
2. Construct an ellipse with major axis 100 mm and minor axis 60 mm by intersecting lines method.
3. Construct an ellipse with major axis 100 mm and minor axis 60 mm by concentric circles method.
4. The distance between the foci of an ellipse is 80 mm and the minor axis 60 mm. determine the length of the major axis and construct the ellipse by intersecting arcs method.
5. Construct a parabola using intersecting arcs method, given the distance between its focus and the directrix as 60 mm.
6. Construct a parabola by intersecting lines method. Given base=80 mm and axis =70 mm.
7. Inscribe a parabola in a rectangle of 100 mm x 60 mm, taking the length of axis as 60 mm. Locate its focus and directrix. Also draw a tangent and normal at any point on the curve.
8. Draw an involute to a line AB of length 10 mm, when the string unwinds 4 turns in clockwise direction from the end A.
9. Draw an involute to a line AB of length 10 mm, when the string unwinds 5 turns in the anticlockwise direction from A.
10. Draw an involute to a square ABCD of side 20 mm, unwinding in clockwise direction from the free end at 'D'.
11. Draw the involute to a circle of diameter 30 mm(unwind the string in clockwise direction)
12. Draw a cycloid given the diameter of the generating circle as 50 mm.
13. Draw a single start helix of 80mm pitch on a vertical cylinder of diameter 50 mm and develop the helix.
14. Draw a helix of 72 mm pitch for one revolution around a right circular cone of diameter 60 mm and height 72 mm. Also show the plan and development of helix.
15. Draw a sine curve, given the amplitude is equal to 20 mm.
16. Two fixed points are 100mm apart. A point P moves in such a way that the sum of its distances from the two fixed points is always constant and equal to 150mm. Trace the path of the point and name the curve.
17. Inscribe a parabola in a rectangle of 100 mm X 60 mm, taking the length of the axis as 60 mm. Locate its focus and directrix. Also draw a tangent and normal at any point on the curve.
18. A circle of diameter 50 mm rolls along a straight line without slipping. Draw the curve traced by a point 'P' on the circumference for one complete revolution of the circle. Also draw normal and tangent to the curve at a point on it 40 mm from the line.
19. A ball is thrown from the top of the building 10m high just crossed above the top of a pole 15m tall and situated 5m away from the point of projection. Draw the path traced by the ball until it reaches the ground.
20. An elastic string of 150m long has its end attached to the circumference of a circular disc of 40 mm diameter. Draw the curve traced out by the other end of the string when it is completely wound around the disc keeping the string always straight. Name the curve.
21. The foci of an ellipse are 90 mm apart and the minor axis is 60 mm long. Determine the length of the major axis. Complete the ellipse by concentric circles method for the top half and oblong method for the bottom half.