FACULTY OF ENGINEERING AND INFORMATICS
B.E. I Year (Common to all Branches) (Main)
Examination, June 2010
ENGINEERING GRAPHICS

Time : 3 Hours]   [Max. Marks : 100

Note : *Answer **all** questions of Part A.*
*Answer **five** questions from Part B.*

PART – A   (35 Marks)

1. Write freehand vertical capital alphabets, M and W in single stroke of 5-mm height, take aspect ratio as 7 : 4.   2

2. Construct a scale of 1 : 6 to show decimetre and centimetre to read upto 1 m. Show on it a length of 7.4 dm.   4

3. Draw a parabola passing through three vertices of a triangle of sides 30 mm, 45 mm and 60 mm. The corner of the triangle common to 45 mm and 60 mm sides lies on the axis of parabola. Use any method.   4

4. State the difference between first and third angle projections ? Draw any example.   3

5. A line AB 75 mm long, inclined at 45° to HP and 30° to VP. Its end B is in HP and 40 mm in front of VP. Draw its projections.   4

6. A triangle with its sides 30, 40 and 50 mm respectively is resting with its 50 mm side in VP and inclined to HP at 22.5°. The plane of the triangle is inclined at 30° to HP. Draw its projections.   4

7. A right hexagonal pyramid of base 30 mm and axis 60 mm long rests on its base in HP with one of the base edges parallel to VP and 30 mm in front of it. The axis of the Pyramid is normal to HP. Draw its projections.   4

8. Develop the lateral surface of a square-base prism of base edge 20 mm and axis 40 mm long.   4

9. Write the suitability of line method and cutting plane method used for solving intersection of surface problems.   2

10. Trace the involute of a straight line 3 cm long for two convolutions.   4

PART – B   **(65 Marks)**

11. a) Two points P and Q are 110 mm apart. A point 'T' is 75 mm from P and 60 mm from Q. Draw an ellipse passing through P, Q and T.

    b) Define cycloid, epicycloid and hypocycloid.

12. A line PQ is equally inclined to HP and VP. Its point P is in first quadrant and is 60 mm and 20 mm away from HP and VP, respectively. End-point Q is 60 mm below HP. Draw its projections and find its true length and its traces.

13. A right regular hexagonal prism, edge of base 20 mm and length 55 mm, lies on one of its rectangular faces such that its axis is parallel to both HP and VP. Draw its projections when it is in first quadrant.

14. A cone of 50 mm diameter and 70 mm long axis rests on one of the points of its base in HP. The axis of the cone is inclined at 45° to HP and 30° to VP. Draw its projections.

15. A cylinder of diameter 50 mm and axis 75 mm long rests on one of the points of the base in HP and its axis parallel to VP and inclined to HP at 30°. A horizontal sectioning plane cuts the cylinder at a distance 45 mm above the HP. Draw the sectional plan and elevation and the true shape of the section.

16. A cylinder of base diameter 40 mm and axis 55 mm long rests with its base on HP. It is so sectioned that its elevation appears as an isosceles triangle of base 40 mm and height 55 mm. Develop its surface.

17. A vertical cone of the base diameter 75 mm and axis 90 mm long rests with its base in HP. A horizontal cylinder of base diameter 30 mm penetrates the cone such that the axis of the cone intersects that of the cone and is 20 mm above HP. Draw the projections of the intersecting surfaces showing the intersection curve in plan and elevation.