



FACULTY OF ENGINEERING AND INFORMATICS
B.E. I Year (New) (Common to All Branches) (Suppl.)
Examination, January 2012
ENGINEERING GRAPHICS

Time: 3 Hours]

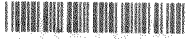
[Max. Marks: 100

Note : Answer all questions from Part A. Answer any five questions from Part B.

PART – A

(35 Marks)

1. Write where the following lines are used in graphics : 2
 - a) Continuous thick line
 - b) Continuous zig-zag line
 - c) Dash-Dot lines
 - d) Thin Dash lines.
2. A vehicle is travelling at a speed of 50 km per hour. On a scale representing one third of a kilometer by a cm, show the distance travelled by the vehicle in $3\frac{1}{2}$ minutes. Find the R.F. of the scale. 4
3. Draw a parabola passing through all the vertices of an isosceles triangles of sides 45 mm, 60 mm and 60 mm. Use tangent method. 2
4. Two points A and B are in the HP. The point A is 25 mm in front of the VP while B is behind the VP. The distance between their projectors is 70 mm and the line joining their top views makes an angle of 45° with xy. Find the distance of the point B from the VP. 3
5. A straight line is parallel to both VP and HP. Its one end is 25 mm behind VP and 15 mm above HP. Length of the line is 10 cm. Draw its projection. 4
6. A regular pentagon ABCDE, 25 cm side, has its corner A in HP and the side CD parallel to the HP. Draw its projections when its plan is parallel to and 10 mm away from VP. Also draw its traces. 4
7. Draw the projections of a cube of side 40 mm. One of the solid diagonals of the cube makes : 4
 - i) 90° to VP and
 - ii) 30° to VP.
8. A pentagonal pyramid, side of base 25 mm and height 50 mm rests on its base on HP with one of its base edges perpendicular to VP. An auxiliary inclined plane, inclined to HP at 40° cuts the pyramid, bisecting its axis. Draw its front view and true shape of the section. 4



9. A right regular pentagonal prism, edge of base 25 mm and height 70 mm resting on its base on HP, is cut by a section plane inclined to HP at 40° and meeting the axis at a distance of 20 mm from its top end. Develop the outside surface of the cut prism. 4
10. A cube of 25 mm edge is placed centrally on top of a cylindrical block of dia 50 mm and 20 mm height. Draw the isometric drawing of the solids. 4

PART – B

(65 Marks)

11. Draw a branch of hyperbola when the distance of its focus from the directrix is 50 mm and its eccentricity is $3/2$. Also, draw a tangent and a normal to the curve at a point P on it. 13
12. A line AB is 70 mm long. It is inclined at 45° to HP. Its front view $a'b'$ measures 50 mm. The end A is 15 mm above HP and 20 mm in front of VP. The end B is in the first quadrant. Draw the Projections of the line. Determine its traces and its inclination to VP. 13
13. An equilateral triangular plate is of 50 mm side with negligible thickness. Draw the front and top views of the plate when its plane is vertical and inclined at 35° to VP. Given the Corner nearest to HP is 18 mm from both the HP and VP and a side containing the corner making an angle of 45° to the HP. 13
14. A right regular pentagonal prism, side of base 30 mm and height 70 mm rests on one of its base corners on HP such that its long edge containing the corner is inclined to the HP at 55° and the side of base, opposite to the corner, inclined at 30° to the VP. Draw its projections keeping the vertex towards the VP. 13
15. A right regular pentagonal pyramid, edge of base 30 mm and 65 mm height, is lying on one of its triangular faces on ground plane such that its axis is parallel to VP. A Section plane perpendicular to the VP and inclined to the HP at 60° cuts the pyramid meeting its axis at a distance of 30 mm from the vertex. Draw its sectional top view and true shape of the section. 13
16. A right circular cylinder, base 55 mm dia and 100 mm height, resting on its base in HP, is intersected by another cylinder of dia 40 mm base. The axis of the penetrating cylinder is inclined to HP at 40° , is parallel to VP and intersect the axis of the vertical cylinder at a distance of 20 mm in front of its base (i.e. from its base). Draw the projections of the two cylinders showing the curves of intersection. Assume any suitable length of penetrating cylinder. 13
17. a) The distance between station A and B is 200 km. A vehicle covers this distance in 5 hours. Construct a plain scale to measure time upto a single minute. The R.F. of the scale is $1/200000$. Indicate on this scale the distance covered by the vehicle in 36 minutes. 8
- b) Draw the involute of a line of 15 mm for 5 turns. 5