B.E. / B.Tech. (Model Curriculum) Semester-I & II

ESC102 - Engineering Graphics & Design

P. Pages : 3 **GUG/S/25/13168**

Time : Four Hours * 1 4 8 0 * Max. Marks : 80

Notes :
1. All questions carry marks as indicated.
2. Due credit will be given to neatness and adequate dimensions.
3. Assume suitable data wherever necessary.
4. Use of slide rule, Logarithmic tables, Steam tables, Mollier's chart, Drawing instruments, Thermodynamic tables for moist air, Psychrometric charts and Refrigeration charts is permitted.
5. Retain all construction lines.
6. Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q.9 or Q.10
7. Illustrate your answers wherever necessary with the help of neat sketches.
8. Non programmable Electronic calculator is allowed.

1. a) An inelastic string 160 mm long has its one end attached to the circumference of a pentagonal disc of 40 mm sides. Draw the curve traced out by other end of the string when it is completely wound around the disc, keeping the string always tight. **8**

b) A line AB 80 mm long is so placed that its top view measures 60 mm and front view measures 40 mm. Its end A is 20 mm above HP and 25 mm in front of VP. Draw the projection of line and find its inclination with HP and VP. **8**

OR

2. a) Draw the locus of a point moving in a plane in such a way that the product of its distance from two fixed line is constant. Point on the curve is 30 and 45 mm respectively from these two fixed lines which are at 90º to each other. Name the curve. **8**

b) A line AB 80 mm long is inclined at 40º to VP and 50º to HP. The point A is equidistance from HP and VP which is 25 mm. Draw the projection of line. **8**

3. a) A regular pentagonal lamina of 40 mm side is resting on one of its corner on the VP, and the side opposite to this corner is inclined at 40º to HP. The surface of lamina is inclined at 45º to VP. Draw the projections. **8**

b) A thin Circular plate of 50 mm diameter. AB is resting on point 'A' on its circumference on HP. The diameter AB is inclined at 50º to HP & top view of diameter is inclined at 30º to reference line. Draw the projections. **8**

OR

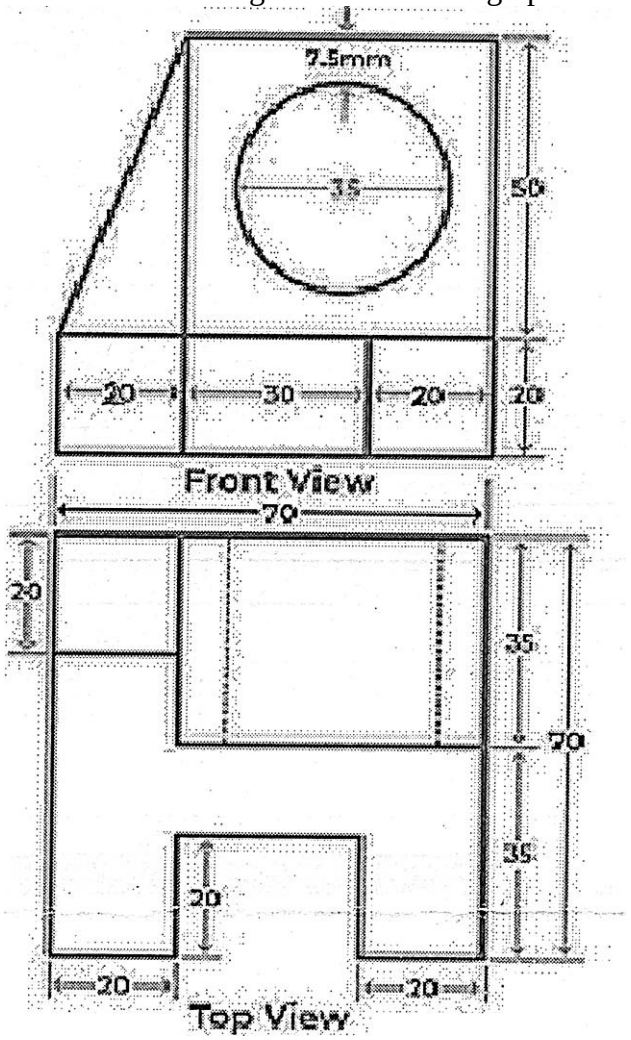
4. A tetrahedron of 75 mm long edges has one edge parallel to the V.P. and inclined at 45º to the H.P. while a face containing that edge is inclined at 35º to V. P. Draw its projections. **16**

5. A hexagonal pyramid, side of base 25 mm long and axis 65 mm long is resting on base on the HP an edge of that base parallel to VP. A section plane inclined at 60º to the HP and perpendicular to the VP cuts the prism and passes through a point on the axis at a distance of 25 mm from the top end of the axis. Draw its sectional top view and true shape of the section. Also draw the development of the cut solid. **16**

OR

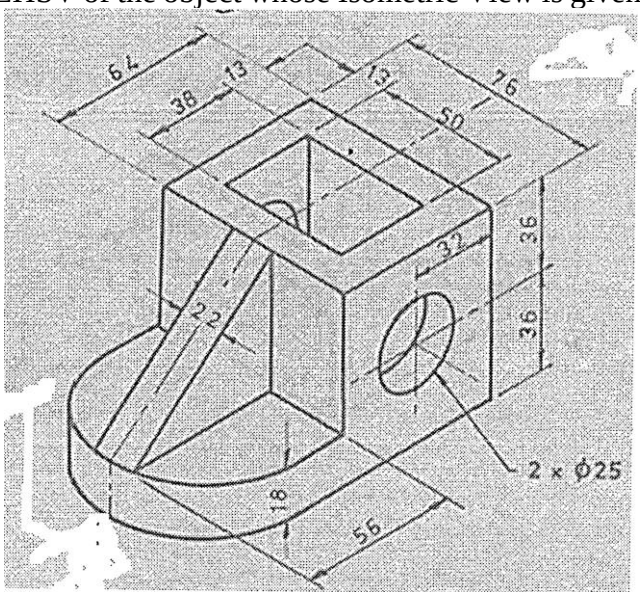
6. A cone, diameter of base 50 mm and axis 80 mm long is resting on HP on its circular base. It is cut by a section perpendicular to HP and inclined at 30º to VP and 12 mm away from axis. Draw the projections and the true shape of cut section. Also draw the development of lateral surfaces of the retained part of cut solid. **16**

7. Draw the Isometric view of the following whose two orthographic views are given. **16**



OR

8. Draw F.V, T.V and LHSV of the object whose Isometric View is given in the following fig. **16**



9. a) What is AutoCAD? Which file format is used in AutoCAD? What are the various fields where AutoCAD is used? **8**

b) Explain the various steps involved in drawing a cylinder of 50 mm diameter and 80 mm axis using AutoCAD. **8**

OR

10. a) What is the use of AutoCAD? How useful it to a Mechanical Engineering? **6**

b) Explain the following commands in AutoCAD in brief. **10**

i) COPY

ii) DIMDIAMETER

iii) FILLET

iv) CHSPACE

v) BOUNDARY

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