

B.Tech. / B.E. (Model Curriculum) Semester-I & II
ESC102 - Engineering Graphics & Design

P. Pages : 3

Time : Four Hours



GUG/W/24/13168

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. Retain the construction lines.
 5. 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. Non programmable electronic calculator is allowed.
 6. Answer 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.

1. a) A ball thrown by a fielder standing on boundary towards wicket keeper achieved a maximum height of 60 meters. Draw the curve traced by ball, assuming it to be parabolic, from fielder to wicket keeper. Assume the point of throw and catch at same level. The shortest distance between fielder and wicket keeper is 80 Meters. **8**

- b) The point A of line AB is on HP and is 25 mm in front of the VP. The end B is 60 mm above HP. Draw the projections of line if the line is inclined at 40° to HP and its front view is inclined at 65° to reference line. Determine the true length and inclination of line with VP. **8**

OR

2. a) A straight line AB 150 mm long is initially tangent to the circular disc of 55 mm diameter at point A, which is the bottom most point of the disc. It rolls on the surface of disc till its end B becomes tangent to the circle. Trace the path of point A and B. **8**

- b) The projector distance between ends C and D of line CD is 70 mm. The end C is on HP and 60 mm in front of VP whereas the end D is 45 mm above HP and in the VP. Draw the projections and determine the true length and inclination of line with HP and VP. **8**

3. a) A thin regular pentagonal plane of 30 mm long edges has one of its comers in the VP and edge opposite to this corner is inclined at 45° to the HP. The surface of plane is inclined at 40° to VP. Draw the projections of the plane. **8**

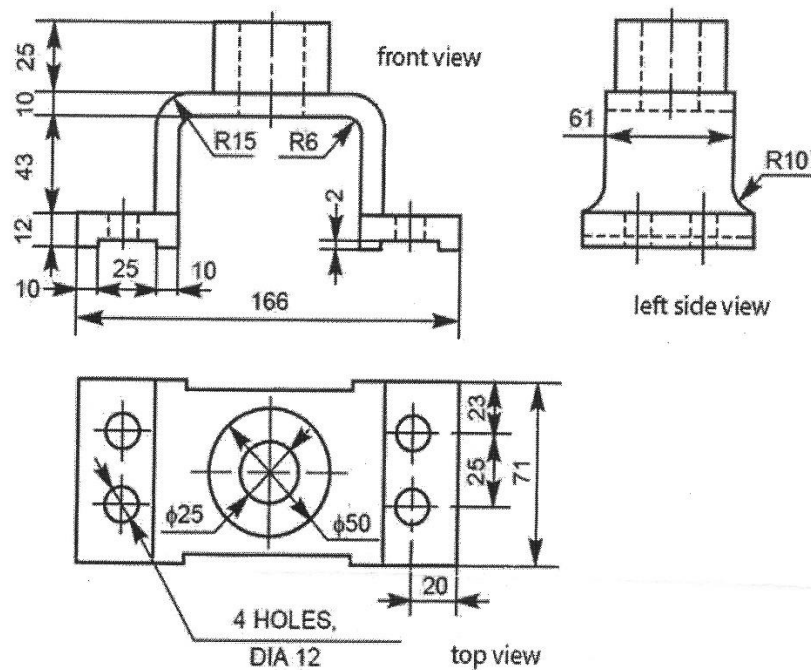
- b) The projections of a triangular plate PQR appears as under: i) In top view- pq makes 30° with xy line, qr = 95 mm. The corner q is 5 mm in front of the VP. ii) in front view - p'q' = 80 mm, q'r' = 45 mm and r' p' = 80 mm p'q' makes an angle of 45° with xy line. The corner P of the plate is 5 mm above the HP. Draw the projections of the plate and determine true shape of the triangular plate. **8**

OR

4. A square pyramid, base 40 mm side and axis 50 mm long, is freely suspended from one of the corners of its base. Draw its projections, when the vertical plane containing axis makes an angle of 45° with VP. **16**
5. A solid cylinder with 60 mm diameter of base and 80 mm axis is resting on its circular base on HP. It is cut by a section plane inclined at 40° to HP and passing through midpoint of axis. Draw Front view, sectional top view, true shape of section and develop the remaining part of solid. **16**

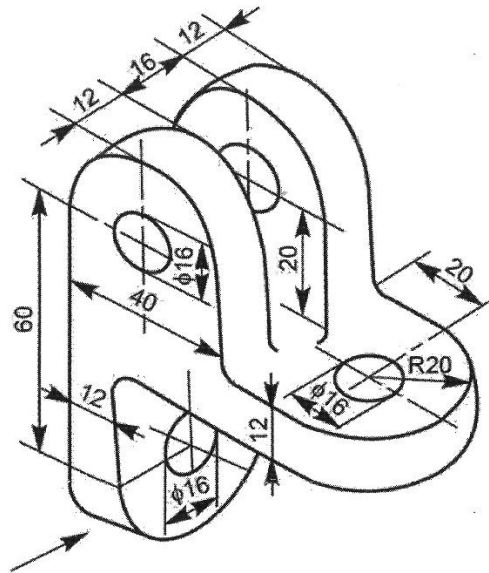
OR

6. An equilateral triangular prism, base 50 mm side and height 100 mm is standing on the ground on its triangular face with one of sides of that face inclined at 90° to the VP. It is cut by an inclined plane in such a way that the true shape of the section is a trapezium of 40 mm and 12 mm parallel sides. Draw the projections and the true shape of the section and find the angle by which the cutting plane makes with the HP. Also draw the development lateral surfaces of the cut prism. **16**
7. Draw the Isometric view of the following whose front, side and top views are given. **16**



OR

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



9. a) What is the process of copying the dimension styles from one drawing to another in Autocad? 4
- b) What are the steps that enable the drag and drop feature in Autocad? 4
- c) Explain the purpose and applications of computer graphics in technology in detail. 8

OR

10. a) How you can hide the specific layer when plotting in Autocad? 4
- b) How to set up a default drawing directory in Autocad? Explain in brief. 4
- c) Explain the following commands in AutoCAD in brief: 8
- TRIM
 - WBLOCK
 - MOVE
 - CIRCLE
