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MAR-21-210006

B. Tech. EXAMINATION, March 2021

Semester I & II (CBCS)

ENGINEERING DRAWING & GRAPHICS

ME-102

Time : 2 *Hours* *Maximum Marks :* 40

The candidates shall limit their answers precisely within 20 pages only (A4 size sheets/assignment sheets), no extra sheet allowed. The candidates should write only on one side of the page and the back side of the page should remain blank. Only blue ball pen is admissible.

Note : Attempt *Four* questions in all, selecting *one* question from each Sections A, B, C and D. All questions carry equal marks.

Section A

1. A rectangular plot of land area 0.45 hectare is represented on a map by a similar rectangle of 5 square centimetres. Calculate the R.F. of the scale of the map. Also draw a scale to read upto single metre from the map. The scale should be long enough to measure upto 400 metres. 1 hectare = 10,000 square metres. **10**

2. The point U of line UV is in first quadrant, 20 mm above H.P. and 30 mm in front of V.P. The other end point V is in third quadrant, 40 mm behind V.P. and 50 mm below H.P. The distance between the projectors of the line is 60 mm. Draw the projections of the line and find its true length by rotating line method. **10**

Section B

3. Draw the projections of a cylinder, base 30 mm diameter and axis 40 mm long, rests with a point of its base circle on H.P. such that the axis is making an angle of 30° with H.P. and its top view perpendicular to V.P. **10**

4. A pentagonal pyramid of base side 20 mm and altitude 55 mm rests on its base on HP with one of the base edge perpendicular to the V.P. It is cut by a plane inclined at 30° to the base. The cutting plane meets the axis at 15 mm above the base. Draw the front view and sectional top view. **10**

Section C

5. A sphere of radius 20 mm is kept on the top face of a square prism of side of base 40 mm and heigth 20 mm. The latter is placed on the top face of a cylinder of 65 mm diameter and 25 mm height. All the three solids have the common axis. Draw the isometric projection of combination of solids. **10**

6. Draw the isometric projection of a cone of base 40 mm diameter and height 60 mm when it rests with its base on H.P. **10**

Section D

7. A pentagonal pyramid, side of base 30 mm and height 50 mm stands with its base on H.P. and an edge of the base is parallel to V.P. and nearer to it. It is cut by a plane perpendicular to V.P., inclined at 40° to H.P. and passing through a point on the axis, 30 mm above the base. Draw the sectional top view. Develop the lateral surfaces of the truncated pyramid. **10**

8. A square prism, side of base 45 mm stands with its base on HP and two of its rectangular faces are equally inclined to V.P. It is completely penetrated by

a horizontal square prism of side of base 35 mm such that their axes are 10 mm apart. The rectangular faces of the horizontal prism are equally inclined to VP and its axis is parallel to V.P. Draw the lines of intersection. **10**

9. (a) Why do we always adopt first and third angle projection instead of second and fourth angle projection ?

   (b) Differentiate between unidirectional and aligned method of dimensioning with example.

   (c) What is the full-form of BIS in Engineering Drawing Practice ? Differentiate between orthographic and isometric projections.

   (d) Define Solid. Give broad classification of solids used in Engineering Drawing practices.

4×2.5=10