FACULTY OF ENGINEERING
B.E. I Year (NON-CBCS) (Backlog) Examination, March / April 2022

Subject: Engineering Graphics

Time: 3 Hours **Max. Marks: 75**

(Missing data, if any, may be suitably assumed)

PART – A

Note: Answer all questions. **(25 Marks)**

1. Define Engineering Drawing?

2. Define Ellipse and Parabola by conic sections method?

3. What are oblique planes?

4. What is the difference between AVP and AIP?

5. What are oblique solids? Give examples?

6. What are different types of solids?

7. What is the difference between apparent section and true section?

8. What do you understand by V.T and H.T. of section plane?

9. Define isometric planes and isometric scale?

10. What do you by mean by Isometric Projection?

PART – B

Note: Answer any five questions. **(5 x 10 = 50 Marks)**

11. (a) Construct a Vernier scale of 1:40,000 showing kilometers, hectometers and decameters and long enough to measure 5 km. mark distances of 2.34 km and 3.92 km on the scale?

    (b) Construct a parabola with the distance of the focus from the directrix as 50 mm. also draw normal and tangent to the curve at a point 40 mm from the directrix by Eccentricity Method.

12. (a) The length of the top view of a straight line AB parallel to the VP and inclined at 40° to H.P. is 60 mm, its end A is 10 mm above H.P. and 25 mm infront of V.P. Draw the projections and determine the true length of the line AB.

    (b) An equilateral triangle of 30 mm sides has a corner in V.P. and 20 mm away from H.P. Draw its projections and traces when the plane is parallel to the H.P. and one of its sides inclined at 45° to the V.P.

13. (a) A square pyramid of base 50 mm side, axis 75 mm long is resting on a square block of 40 mm thickness. The corners of the square pyramid's base just touches the centers of the top edges of the block. Draw the front view on an auxiliary inclined plane, inclined at $30°$ to an edge of the pyramid's base.

(b) An oblique pentagonal prism with edge of base 30 mm and 80 mm long has its base on H.P. The axis makes an angle of $45°$ with the base and parallel to V.P. Draw the projections when one of its sides is perpendicular to V.P.

14. (a) A cone diameter of base 60 mm and axis 75 mm long, rests on its base on the H.P. it is cut by a section plane perpendicular to V.P., inclined at $45°$ to H.P. and bisecting the axis. Draw the front view, sectional top view and true shape of the section. Also project the sectional side view.

(b) An oblique hexagonal prism of side of base 30 mm and axis 90 mm long and inclined at $45°$ to the base is resting on its base on H.P. It is cut by a section plane, perpendicular to H.P. and V.P. and passing through the top end of the axis. Draw the development of the cut prism

15. (a) Draw an isometric projection of a sphere of 40 mm diameter, resting centrally on a square prism of 45 mm edges and 20 mm thick.

(b) A cylinder of base 80 mm diameter and axis 110 mm long is resting on its base on H.P. it has a circular hole of 60 mm diameter, drilled centrally through such that, the axis of the hole is perpendicular to V.P. and bisects the axis of the cylinder at right angle. Develop the lateral surface of the cylinder.

16. (a) The distance between two cities A and B is 300 kilometers. Its equivalent distance on the map measures only 6 centimeters. What is the R.F.? Draw a diagonal scale to show hundreds of kilometers, tens of kilometers and kilometers. Indicate on the scale the following distances: (i) 525 kilometers (ii) 313 kilometers and (iii) 277 kilometers.

(b) Two point A and B are 100 mm apart. A point 'C' is 75 mm from 'A' and 60 mm from 'B'. Draw an ellipse passing through A, B and C.

17. A solid is in the form of a square prism of side of base 30 mm upto a height of 50 mm and thereafter tapers into frustum of a square pyramid, whose top surface is a square of 15 mm side. The total height of the solid is 70 mm. Draw the development of the lateral surface of the solid.

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