

**COMBINED FIRST AND SECOND SEMESTER B.ARCH. DEGREE  
EXAMINATION, MAY/JUNE 2005**

**GEOMETRICAL DRAWING**

(2003 Scheme)

Time : Four Hours

Maximum : 100 Marks

**Part A**

*Answer all questions.*

*Questions in Part A should be answered in answer book provided to the candidate.*

- I. (a) Explain the principle of diagonal scale.  
 (b) What is meant by traces of planes ? How are they determined ?  
 (c) Briefly describe the methods of determining line/curve intersection ?  
 (d) Differentiate between isometric view and isometric projection.  
 (e) Define the following terms with respect to perspective projection :
- |                       |                     |
|-----------------------|---------------------|
| (i) picture plane.    | (ii) Station point. |
| (iii) Axis of vision. | (iv) Ground plane.  |

(5 × 5 = 25 marks)

**Part B**

*Retain all construction lines.*

*Assume suitable scale wherever necessary.*

*Questions in Part B should be answered in drawing sheet provided to candidate.*

**MODULE I**

2. (a) Construct a diagonal scale to measure a km such that 10 cm represents 250 km. Mark on it a length of 173 km.  
 (5 marks)
- (b) Draw an archimedian spiral of  $1\frac{1}{4}$  convolutions when the greatest and the shortest radii are 75 mm and 15 mm respectively.  
 (10 marks)

*Or*

3. (a) Construct a diagonal scale of 1 : 30 to show meters, dm, cm and to measure up to 4 m. Show a distance of 2.35 meters.  
 (5 marks)
- (b) The foci of an ellipse are 85 mm apart and minor axis is 65 mm. Draw the ellipse by concentric circles method.  
 (10 marks)

## MODULE II

4. (a) Draw the projections of the following points represented by their  $x$  and  $y$  co-ordinates.

C (20, 30), D (-30, 40) E (-20, -30), F (20, -30).

(5 marks)

- (b) The plan and elevation of a triangular plate are two right angled triangles having 50 mm and 20 mm as adjacent sides other than hypotenuse. Find the line shape of triangle.

(10 marks)

Or

5. (a) Draw the projections of a line AB 100 mm long, inclined at  $40^\circ$  HP and parallel to VP and 10 mm in front of VP.

(5 marks)

- (b) A hexagonal prism of side of base 30 mm and axis 70 mm long is lying with one of its rectangular faces on H.P. Axis of solid is parallel to H.P. and inclined at an angle at  $45^\circ$  to VP. Draw front and top views of solid.

(10 marks)

## MODULE III

6. A vertical cylinder of diameter 50 mm is met by a horizontal cylinder of same size. Draw the intersection of axes intersect in same plane. Assume a length of 100 mm.

Or

7. A cone of 50 mm diameter and height 60 mm is resting on its base on H.P. It is cut by a section plane inclined at  $45^\circ$  to H.P. and passes through the extreme left point of the base. Draw the sectorial top view and left side view of the remaining solid. What is the size of the true shape of the section.

## MODULE IV

8. Draw the isometric view of a hexagonal pyramid of side of base 30 mm and height 75 mm when it is resting on H.P. Such that an edge of base is parallel to V.P.

Or

9. A cone of base diameter 100 mm and height 130 mm rests with its base on H.P. It is cut by a section plane inclined at  $30^\circ$  to H.P. and perpendicular to V.P. Draw the development of the truncated cone if the section plane bisects the axis of cone.

## MODULE V

10. Draw the perspective view of a rectangular prism of 60 mm  $\times$  30 mm  $\times$  20 mm size lying on its 60 mm  $\times$  30 mm rectangular face on ground plane, with a vertical edge touching the p.p. and faces inclined at  $45^\circ$  with p.p. The S.P. is 120 mm in front of p.p., 80 mm above ground plane and lies in a central plane which is passing through the centre of the prism.

Or

11. A square prism, side of base 60 mm and height 100 mm is resting on the rectangular face on ground with all its faces equally inclined to V.P. The light rays are directed towards the  $x$ - $y$  line and makes  $45^\circ$  in plan and  $30^\circ$  in elevation. Draw the shadow cast by prism.

[3  $\times$  15 = 45 marks]