Reg. No. : | | | | | | | | | | | |

T 3509

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2008.

First Semester

(Regulation 2004)

Civil Engineering

GE 1101 — ENGINEERING GRAPHICS

(Common to all branches of B.E./B.Tech)

Time : Three hours Maximum : 100 marks

Answer all FIVE questions in A3 size drawing sheet book provided.

Use appropriate scale if necessary, to fit the solution within A3 size.

$(5 \times 20 = 100)$

1. (a) A line PQ and a point R are situated in space. The distance between the projectors of P and R is 25 mm and that between P and Q is 70 mm. The point P is 45 mm above HP and 10 mm in front of VP. The point Q is 20 mm above HP and 40 mm in front of VP. The point R is 15 mm above HP and 50 mm in front of VP. Find the shortest distance between R and the line PQ

Or

(b) (i) One end P of a straight line PQ is 35 mm above HP and 25 mm in front of VP. The end Q is 50 mm above HP and 45 mm in front of VP. The distance between the projectors is 60 mm. Determine the true length and true angles of inclination of the line with HP and VP. (10)

(ii) A hexagonal plate of side 30 mm has one of its corners in the HP and the opposite corner in VP. The plate makes 60° to HP and 30° to VP. Draw the top and front views of the plate. (10)

2. (a) A pentagonal pyramid of base of side 30 mm and axis 65 mm has one of its slant faces on VP and the edge of the base contained by that face is inclined at 45° to HP. Draw its projections.

Or

(b) A cube of edge 35 mm rests on HP on one of its corners with a solid diagonal perpendicular to VP. Draw its projections.

3. (a) A hexagonal pyramid of base side 30 mm and attitude 60 mm rests on one corner of the base on HP such that the axis is inclined at 30° to HP and parallel to VP. The base edges containing the resting corner are equally inclined to HP. A cutting plane inclined at 45° to HP and perpendicular to VP cuts the solid bisecting the axis. Draw the sectional top view and true shape of the section.

Or

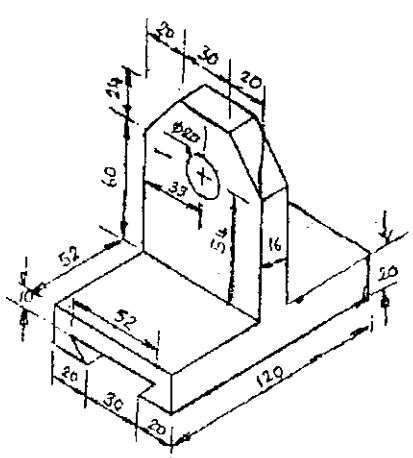
(b) A cone of base diameter 50 mm and height 70 mm rests on its base on the ground. A string is wound round the curved surface of the cone starting from left extreme point and ending at the same point. Find the shortest length of the string required. Also, trace the path of the string in the front and top views.

4. (a) A waste paper basket is in the form of a frustum of hexagonal pyramid with base 80 mm hexagon and top 120 mm. Draw the isometric view if its height is 200 mm. The thickness of the basket can be taken as 12 mm. Adopt a suitable scale.

Or

(b) A square pyramid of side 30 mm and height 50 mm is placed on a cube of side 30 mm such that the corners of the pyramid base and the cube coincide. The base of the cube is on the ground such that the base edges are at 45° to picture plane. The vertical edge of the cube nearer to PP is 25 mm behind it. The station point is 60 mm in front of PP, 50 mm to the left of the combined axis and 100 mm above the ground. Draw the perspective view.

5. (a) Draw the top, front and any one of the side views of the object show in Fig. 1



Front View

Fig. 1

Or

(b) Draw the top, front and any one of the side views of the object shown in Fig. 2.

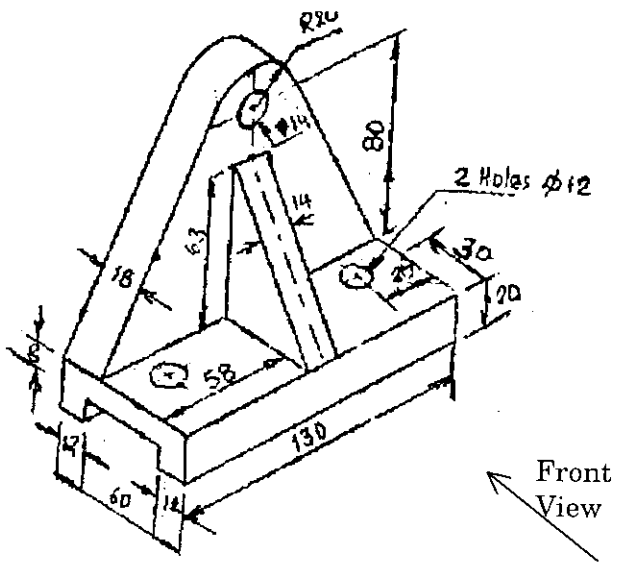


Fig. 2

All dimensions are in 'mm'