

**ENGINEERING DRAWING & GRAPHICS**

*Time: Three Hours*

*Maximum Marks: 100*

*Answer five questions, taking ANY TWO from Group A, any two from Group B and all from Group C.*

*All parts of a question (a, b, etc. ) should be answered at one place.*

*Answer should be brief and to-the-point and be supplemented with neat sketches.*

*Unnecessary long answer may result in loss of marks.*

*Any missing or wrong data may be assumed suitably giving proper justification.*

*Figures on the right-hand side margin indicate full marks.*

**Group A**

1. (a) What is the principle of construction of vernier scale? 10  
(b) Construct a vernier scale to give readings of one-tenth of a mm up to 100 mm and mark off on it the following: (i) 81.3 mm, (ii) 20.9 mm. Select a scale 15 : 1. 10
2. Compare first angle projection and third angle projection methods with sketches. A line AB has its end A 10mm above H.P. and 15mm in front of V.P. The line, 80 mm long, is inclined at  $30^\circ$  to V.P. The distance between the projectors drawn through the end points in top and front views is 55 mm. Draw the projections of the line. Determine inclination with H.P. How far the point B is from the principal planes of projection? Draw its traces and find the distance between the traces measured along xy. 20
3. A circular plate of 60 mm diameter has a hexagonal hole of 20 mm sides centrally punched Draw the projections of the circular plate resting on H.P. with its surface inclined at  $30^\circ$  to the H.P. and the diameter through the point on which the lamina rests on H.P is inclined at  $50^\circ$  to V.P. The parallel sides of hexagonal hole are perpendicular to the diameter of the circular plate passing through the point on which it rests. 20

4. A sphere of 60 mm diameter is placed centrally on the top of a frustum of a square pyramid. The sides of base and top face are 60 mm and 40 mm, respectively. The height of the frustum is 50 mm. Draw the projection of the arrangement. 20

***Group B***

5. A hexagonal pyramid, base 30 mm side and axis 60 mm long, has one of its slant edges on H.P. such that two of its triangular faces containing the slant edge on which it rests are equally inclined to H.P. The top view of the axis appears to be inclined at  $45^\circ$  to V.P. Draw its projections when its base is nearer to the observer than its apex. 20
6. A right regular cone of 40 mm base diameter and 50 mm height rests on its base on HP. A section plane, perpendicular to VP and inclined to HP at  $45^\circ$  cuts the cone bisecting its axis. Draw the projections of the truncated cone and develop its lateral surface. Also, draw the true shape of the section. 20
7. A cone, base 60 mm diameter and axis 70 mm long, is resting on H.P. on its base. It is cut by a section plane perpendicular to V.P. and inclined at  $75^\circ$  to H.P. so as to cut the axis of the cone at a point 20 mm above the base. Draw its front view, sectional top view and the true shape of section. Name the shape of the curve. 20
8. (a) Draw the front view, top view and left hand side view of the object shown in figure. Consider the view from the arrow X as front view. All dimensions are in mm. 10



- (a)  $90^0$
  - (b)  $120^0$
  - (c)  $60^0$
- (v) Hardware of a computer consists of
- (a) only input unit
  - (b) only input and output unit
  - (c) input, processor and output unit
- (vi) QUIT is a command used in AutoCAD to
- (a) returns to the main menu and update drawing file
  - (b) returns to main menu without updating drawing file
  - (c) list all the AutoCAD commands
- (vii) Input units of a computer is
- (a) Digitizer
  - (b) ROM and RAM
  - (c) Primer
- (viii) Data can be permanently stored In
- (a) ROM
  - (b) RAM
  - (c) Auxiliary
- (ix) ORTHO a a command used in AutoCAD to
- (a) display dotted lines on the screen
  - (b) draw either horizontal or vertical lines
  - (c) located specific points on the drafting sheet
- (x) The GRID command is used in AutoCAD to
- (a) set Increments for cursor movement
  - (b) display dotted lines on screen
  - (c) move an object on the screen

*(Refer our course material for answers)*