Indian Institute of Technology, Delhi
Department of Mechanical Engineering
Major (Graphics Science (MEL 110))

Max. Marks: 60 Time: 2Hrs. 30 Min.

Q1. A regular triangular pyramid of height 50 mm has its base as an equilateral triangle ABC of side 30 mm. Its side BC is perpendieular to the frontal plane. The pyramid is inclined with edge BC on the ground such that the axis of the pyramid makes an angle of 50° with the ground. 'O' is the vertex of the pyramid. a) Obtain the true shape of the face OAB from the front and top view of the inclined pyramid. b) A hole is to be drilled, on OAB, with its center at the intersection of the angular bisectors of the triangle OAB. Locate the center of the hole in the true shape, from which obtain the corresponding location in the top and front view. (8+4)

Q2. A vertical cylindrical pipe of diameter 80mm has a cap, at its upper end, which is part of a hemisphere of diameter 100mm. Draw the development of the cap by Gore's method.

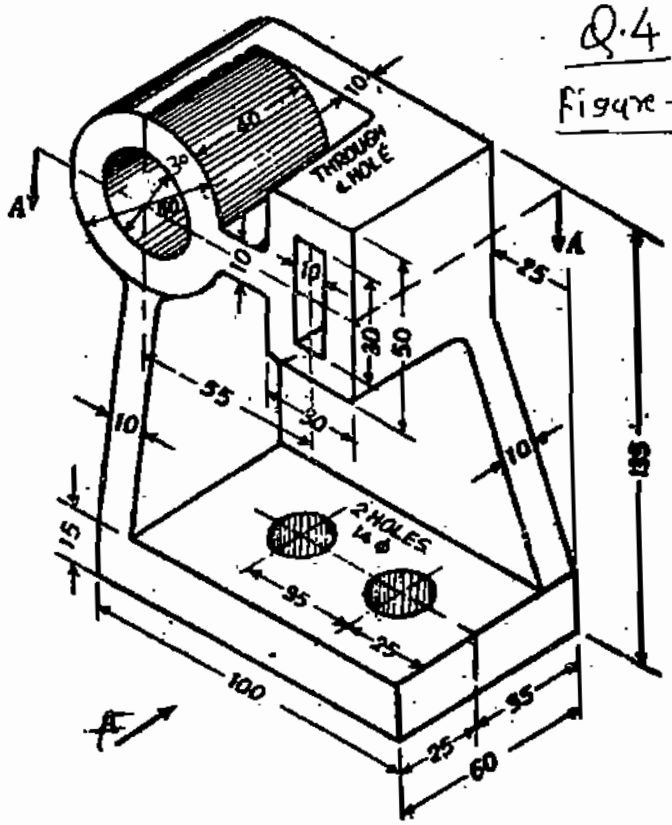
Q3. A right circular cone with its base on the ground is intersected by a square prism. The radius of the cone is 40 mm and height is 100 mm. The side of the base of the prism is 20 mm. The axis of the prism is parallel to the front plane and is inclined at an angle of 30° to the top plane. One of the diagonals of the square-base of prism is also parallel to the front plane. The axes of the cone and the prism do not intersect and have an offset of 5 mm between them. In the front view, the axis of the prism intersects the center line of the cone at a distance of 70mm from the vertex of the cone. Draw the curves of intersection between the cone and the square prism in front and top view.

Q4. Draw the sectional top view (section AA) and the front view in the direction of arrow F for the object shown in Figure 1. Also dimension the two views according to unidirectional system of dimensioning.

Q5. The three views of an object are shown in figure 2. Draw the oblique view of the object.

Q.4

Figure-1



Q.5