F.E. (Semester – I) (Revised in 2007-08) Examination, May/June 2014
ENGINEERING GRAPHICS

Duration : 4 Hours   Total Marks : 100

Instructions : i) *Attempt* **five full** *questions with atleast* **one** *question from*
                       each Module.
                   ii) **Missing** *data,* **if any** *may be suitably* **assumed.**

MODULE – I

1. a) A stone is thrown from a building 6 meters high. It just crosses the top of a
      palm tree 12 meters high. Trace the path of the projectile if the horizontal
      distance between the building and the palm tree be 3 meters. Also find the
      distance of the point, from the building, where the stone falls on the ground. **10**

   b) A line AB, 80 mm long, is inclined at 45° to the HP and 30° to the VP. Its
      midpoint C is in the VP and 15 mm above the HP. The end A is in the third
      quadrant and B is in the first quadrant. Draw the projections of the line. **10**

2. a) An inelastic string is unwound to a length of 122 mm from a drum of diameter
      30 mm. Draw the locus of the free end of the string which is held tight during
      unwinding. **10**

   b) The distance between the end projectors of a straight line PQ is 60 mm. The
      line makes 30° and 45° angles with the HP and VP respectively. The end P
      is 30 mm below HP and 50 mm in front of the VP. Draw the projections when
      end Q is in the third quadrant. Find true length of the line. **10**

MODULE – II

3. a) A regular hexagonal plate of negligible thickness and of 30 mm side has a
      corner in HP and another diagonally opposite corner touching VP. The plate
      is inclined to HP at 55° and 35° to the VP. Draw the front view and top view of
      the plate held in the given position. **10**

   b) A tetrahedron, 50 mm edge, has one of its edges parallel to the HP and
      inclined at 45° to the VP. The face containing the edge is vertical. Draw its
      projections. **10**

4. a) A plate in the form of isosceles triangle has base 45 mm and altitude 60 mm. It is so placed that the front view is seen as an equilateral triangle of 45 mm sides and the base is inclined at 45° to the HP. Draw its projection. **10**

    b) A pentagonal pyramid, side of base 30 mm and length of axis 66 mm, is held so that one of its triangular faces is in VP and the base edge contained by the face is inclined at 45° to HP. Draw its front and top view. **10**

MODULE – III

5. A right regular pentagonal prism, side of base 25 mm and height 65 mm, rests on an edge of its base on HP such that the rectangular face containing the base edge is inclined to HP at 30°. A section plane perpendicular to the HP and inclined to the VP at 45° cuts the prism such that its long edge farthest away from the VP is bisected. Draw its top view, sectional front view and development of its lateral surface. **20**

6. a) A cone, diameter of base 70 mm and height 80 mm, is resting on HP on its base. It is cut by a cutting plane perpendicular to VP and HP. Cutting plane remains 15 mm away from the axis. Draw the plan, elevation and sectional side view. State the nature of the section. **10**

    b) A frustum of a square pyramid has its bottom of 60 mm side, top 30 mm side and height 70 mm. It is resting on HP on its bottom with two sides of the bottom parallel to VP. Draw the development of the frustum showing on it the string connecting the midpoint of side of one face of top with the midpoint of side of bottom of the opposite face by the shortest length. Show also string in plan and elevation. **10**
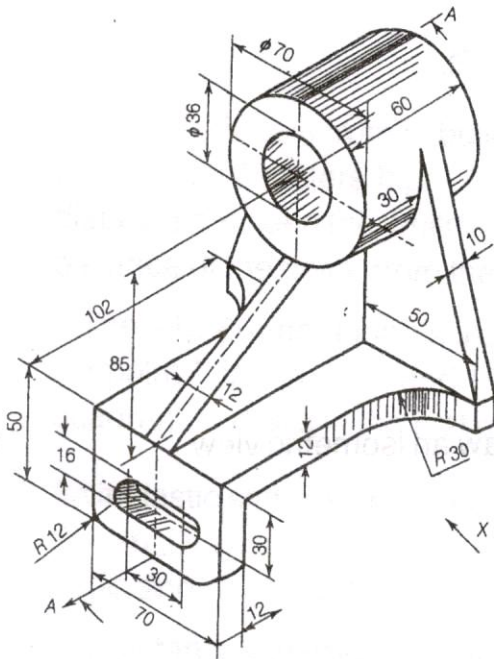
MODULE – IV

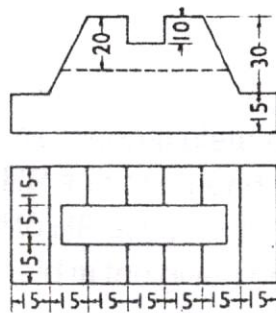7. a) Draw the following views using first angle method of projection : **10**

   i) Front elevation

   ii) Left hand side view.

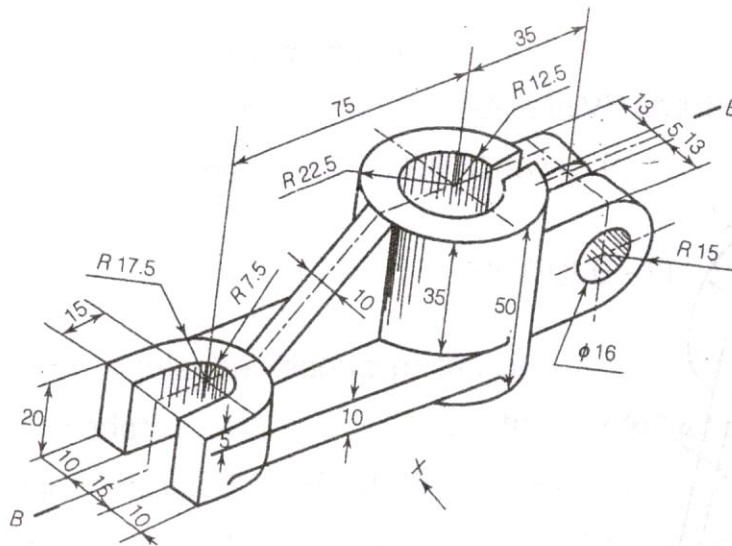b) Two orthographic views are given below. Draw an isometric view. **10**

8. a) A machine component is shown below. Using the first angle method of projection, draw the sectional elevation of the section BB and the plan view of the component.   **10**

b) Two orthographic views are given below. Draw an isometric view.   **10**