

**Engineering Drawing - I : 1 S 7**

P. Pages : 2

Time : Three Hours

**AW - 3538**

Max. Marks : 40

- Notes :
1. Due credit will be given to neatness and adequate dimensions.
  2. Assume suitable data wherever necessary.
  3. Retain the construction lines.
  4. Use of drawing instruments, is permitted.

1. a) In a slider crank mechanism, the connecting rod BC is 100 mm long and the crank AB is 20 mm long. The slider C is sliding on a straight path passing through the point A. Draw the locus of the mid point P on the connecting rod BC for one complete revolution of the crank OB. 7

- b) A thread unwound itself from a cylindrical drum of 60 mm in radius. Draw the locus of the free end of the thread for unwinding through an angle of  $180^\circ$ . 6

**OR**

2. a) Two cranks AO and BQ Oscillates about O and Q respectively. Trace the locus of the mid point P of the connecting Link AB, AO=45 cm, BQ = 67.5 cm, AB = 37.5 cm. 7

- b) A circle of 40 mm diameter rolls along the inner circumference of another circle of 120 mm diameter. Draw the path of point P on the circumference of a rolling circle for one complete revolution. Draw the normal and tangent at any point on a curve. 6

3. a) Distance between the end projectors of line AB 80 mm long is 60 mm. It's one end A is 20 mm above H.P. and 30 mm in front of V.P. Draw the projections of a line if it is parallel to H.P. and also measure inclination with V.P. 6

- b) A thin composite plate, Consists of a square ABCD of 60 mm sides with an additional semicircle constructed on CD as a diameter. The side AB is in the V.P. and makes  $30^\circ$  with the H.P and the surface of the plate makes an angle of  $45^\circ$  with the V.P. Draw its projections. 7

**OR**

4. a) A line AB of unknown length has its end A in H.P. and 25 mm in front of V.P. End B is 25 mm in front of V.P. and 55 mm above H.P. Draw the projection of line If it is inclined at  $30^\circ$  to H.P. and then find the T.L. of line AB. 6

- b) A semi-circular thin plate of 60 mm diameter rests on the H.P. on its diameter which is inclined at  $45^\circ$  to the V.P. and the surface is inclined at  $30^\circ$  to the H.P. Draw the projections of the plate. 7

