2016

ENGINEERING DRAWING

(Theory)

Full Marks - 70

Pass Marks - 21

Time : Three Hours and *Fifteen Minutes

(*Fifteen minutes are given as extra time for reading questions)

INSTRUCTIONS:-

   i)   *Attempt **all** the questions.*

   ii)   *All dimensions are in millimeters.*

   iii) *Missing and mismatching dimensions, if any, may be suitably assumed.*

   iv) *Use both sides of the drawing sheet, if necessary.*

   v)   *Follow the SP: 46-1988 Codes, (With first angle method of projection) if not mentioned.*

1.   (a)   Construct an isometric scale.   4

       (b)   Construct the isometric projection of a right regular hexagonal pyramid, base edge = 40 *mm* and height 65 *mm*, resting on its base on H.P., with two of its opposite base sides parallel to H.P. and V.P., the axis being vertical. Draw the axis, indicate the direction of viewing and give all dimensions.   7

(c) A cylinder of 27 *mm* base diameter and 50 *mm* height, with its axis perpendicular to H.P. is resting centrally over a hexagonal slab of 27 *mm* base edges and 20 *mm* height, having two of its rectangular faces parallel to V.P. Draw an isometric projection of the combination. Keep their common axis vertical. 14

2. (a) Draw to scale 1 : 1, the front view and top view of Hook Bolt of size M 20, keeping their axis vertical. 9

OR

Draw to scale 1 : 1, the standard profile of a metric screw thread (internal), taking pitch as 50 *mm*. Give standard dimensions. 9

(b) Sketch freehand the front view and top view of PAN Head rivet of size M 20, keeping its axis vertical. Give all dimensions. 6

OR

Sketch freehand the front view and top view of a round head machine screw of size M 12, keeping its axis vertical. Give all dimensions. 6

3. Figure-1 shows the details of the parts of a Turnbuckle. Assemble these parts correctly and then draw its following views to scale 1:1, inserting 70 *mm* threaded portion of each rod, inside the body of the turnbuckle:

a. Front view, upper - half in section.

b. Side view as viewed from right.

c. Top view.

Write heading and scale used. Draw the projection symbol. Give all dimensions.
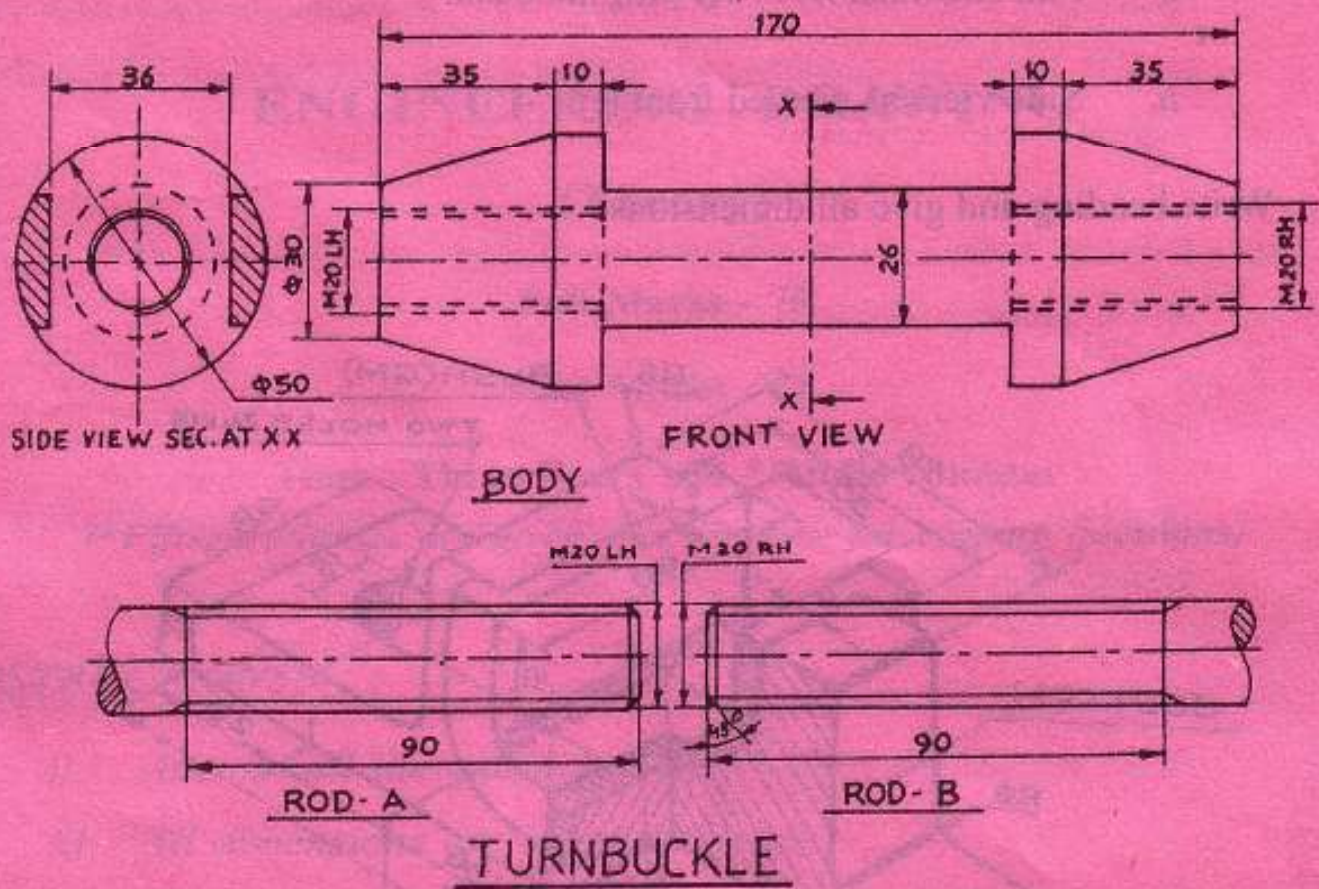
30

BODY

Side view dimensions: 36, Φ50, Φ30, M20 LH

Front view dimensions: 170, 35, 10, 26, 10, 35, M20 RH

SIDE VIEW SEC. AT XX

FRONT VIEW

BODY

TURNBUCKLE

ROD-A: 90, M20 LH

ROD-B: 90, M20 RH, 45°

TURNBUCKLE

Figure-1

OR

Figure - 2 shows the assembly of an 'Open Bearing', with left - half in section. Dissemble the parts as per the directions given below and then draw to scale 1:1 the following :

a. Body of Bearing

    i.   Full sectional front view of the 'Body' of bearing, looking in the direction of the arrow A.

    ii.   Left - hand side view.

b. **Bush**

    i.   Full sectional front view of the bush.

    ii.   Side view as viewed from left.
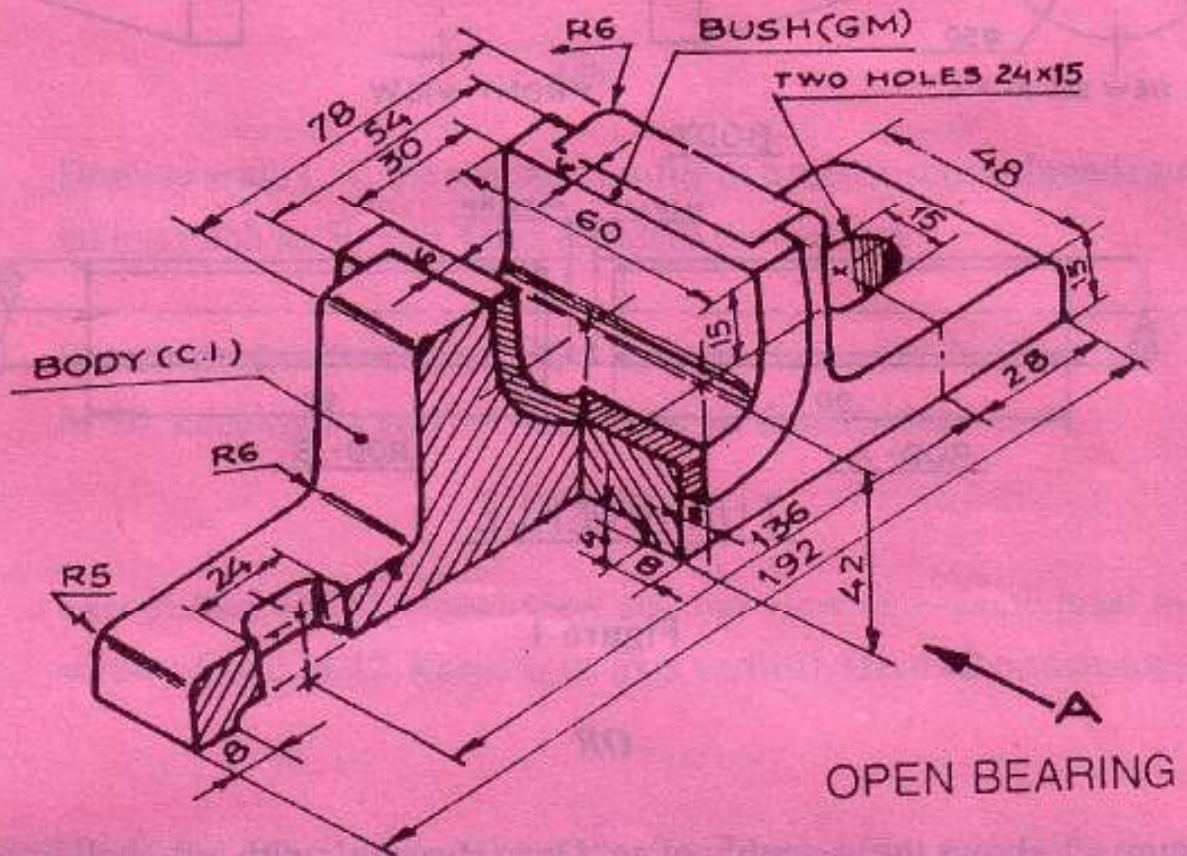
Write heading and give all dimensions.   30

Figure – 2.