2017

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)   Draw the frustum of a pentagonal pyramid of base edges = 30mm and top edges = 20mm. The height of the pyramid is 70mm with its axis perpendicular to H.P. and parallel to V.P., one base side being parallel to V.P. and nearer the observer.   7

(c) A slab in the form of an equilateral triangular prism with a base side of 90mm and height 30mm, is resting on H.P. one of its triangular ends, with one of its base side parallel to V.P. and away from it. A hemisphere of 60mm diameter is centrally placed on the top triangular end of the slab, with its curved surface on it. Draw the isometric projection of the two solids, placed together, showing their common vertical axis. Indicate the direction of viewing the F.V. Give all dimensions. 14

2.   (a)   Draw to scale 1 : 1, the F.V. and S.V. of a collar stud of size M20, keeping its axis horizontal. Give standard dimensions. 6

OR

Draw to scale 1 : 1, the F.V. and T.V. of hexagonal nut of size M30, keeping its axis perpendicular to H.P. Give all standard dimensions. 6

(b)   Draw to scale 1:1, the standard profile of a BSW (British Standard Whitworth) thread, taking enlarged pitch as 60mm. Give standard dimensions. 9

OR

Draw to scale 1:1 the F.V. and T.V. of a hook bolt of size M20, keeping its axis vertical. Give standard dimensions. 9

3. **Fig. 1** shows the details of a Gib and Cotter joint. Assemble the parts correctly and draw the following views to scale 1:1.

(a) Top-half sectional Front View

(b) Top View

(c) Left hand side view.

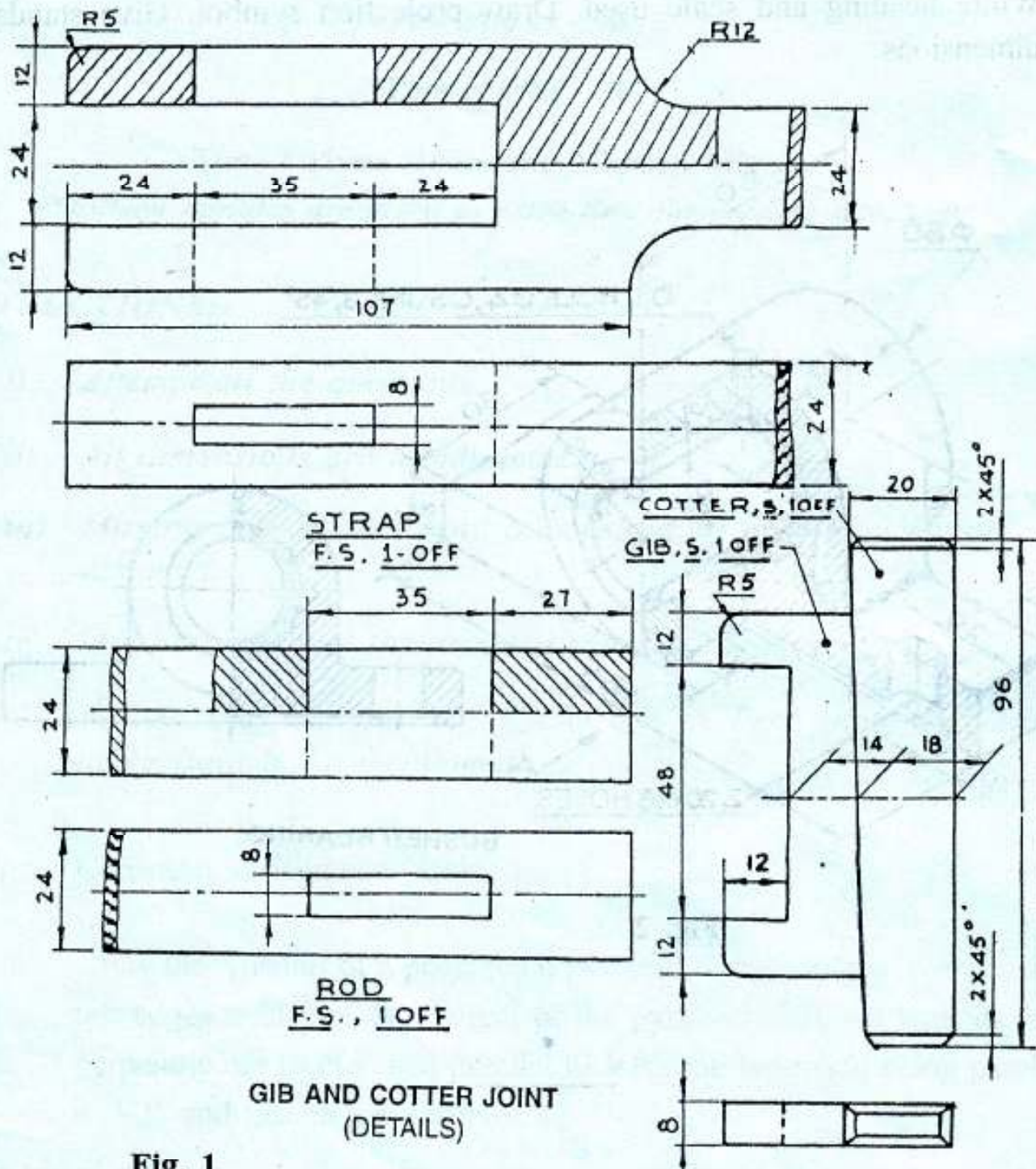Write heading and scale used. Draw the projection symbol. Give standard dimensions.   30

STRAP
F.S. 1-OFF

ROD
F.S., 1 OFF

COTTER, S, 1OFF

GIB, S, 1OFF

GIB AND COTTER JOINT
(DETAILS)

Fig. 1

Fig. 2. shows the bush bearing one quarter removed in order to show the inner details. Draw the following views to scale 1:1.

(a) Front view showing right half in section.

(b) Side view as viewed from left.

(c) Top view.

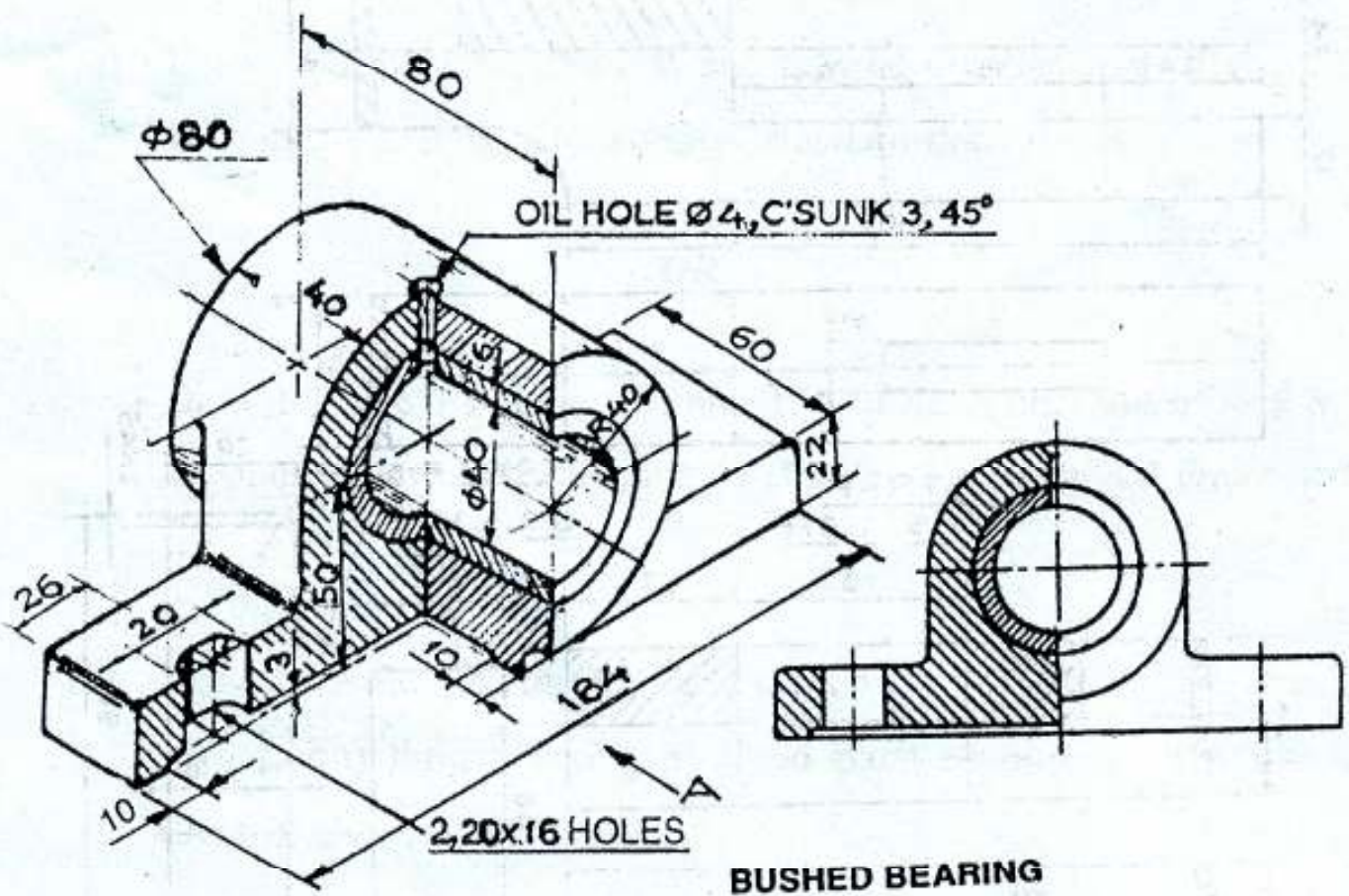White heading and scale used. Draw projection symbol. Give standard dimensions.   30

OIL HOLE Ø4,C'SUNK 3, 45°

2,20x16 HOLES

BUSHED BEARING

Fig. 2