

**B.TECH. DEGREE III SEMESTER (SUPPLEMENTARY) EXAMINATION IN
SAFETY AND FIRE ENGINEERING, JUNE 2002**

**SE 306 MACHINE DRAWING
(1998 Admissions)**

Time: 3 Hours

Maximum Marks: 100

- I. (a) Dimensions of a hole and its mating shaft are given below, according to the basic hole system"
 Hole : 27.500 mm Shaft : 27.470 mm
 : 27.575 mm : 27.445 mm

Find the values of the hole tolerances, shaft tolerances and clearances. Check the calculated dimensions. Also represent these dimensions schematically. (10)

- (b) Explain the meaning of the geometrical tolerances indicated in microns for the machine tool components shown in figure 1 (a) & (b). (10)

OR

- II. (a) Orthographic views of a simple object, indicating geometrical tolerances are shown in figure 2. Interpret the meaning of the tolerances with the help of a diagram. (10)

- (b) Complete the tolerance frames in figure 3 (a) and (b) to satisfy the conditions required in each case:

(i) The axis of the whole component is required to be contained in a cylindrical zone, 0.04 mm diameter.

(ii) The top surface has to be parallel to the hole, within a tolerance of 0.08 mm. (10)

- III. (a) Typical welded joints represented symbolically are shown in figure 4 (a) and (b). Illustrate the joints by drawing fully dimensioned sectional views. Name the joints. (10)

- (b) Sketch a Rag foundation bolt, indicating the standard proportions on the drawing. (10)

OR

- IV. (a) Make a neat sectional view of both external and internal I.S recommended square threads taking pitch as 25mm. Show atleast three threads. Indicate all proportions in the drawing. (15)

- (b) Sketch a castle nut. (5)

- V. Figure 5 shows an isometric view of a Gib and Cotter joint. Draw the following views.

(i) Elevation - Bottom half in section

(ii) Top view

(iii) End view from left

(30 + 20 + 10)

OR

- VI. Draw tope half sectional elevation of an integral flanged joint for the following specifications:

Size of the pipe to be joined = ϕ 80 mm

Outside diameter of the pipe = 100 mm

Outside diameter of the flange = 176 mm

Pitch circle diameter of bolts = 140 mm

Size of the bolt = M 12

Number of bolts = 6

Thickness of the flange = 20 mm

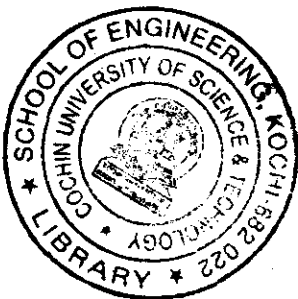
Thickness of the gasket = 3 mm

Also draw an end view.

(40 + 20)

(Figures attached)

(Turn over)



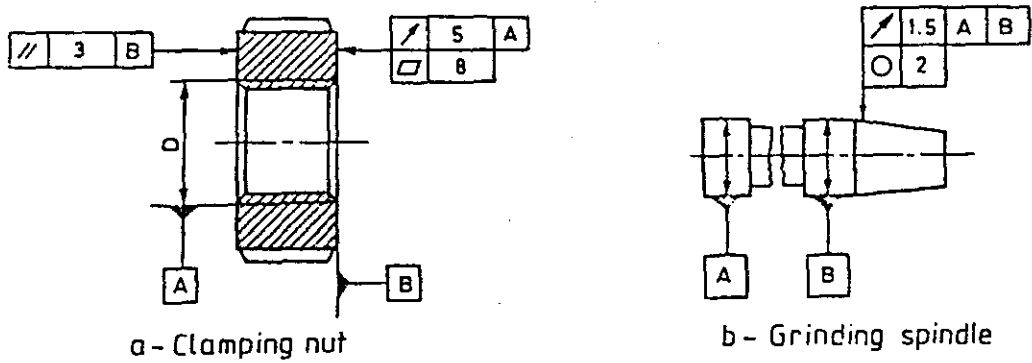


Fig-1

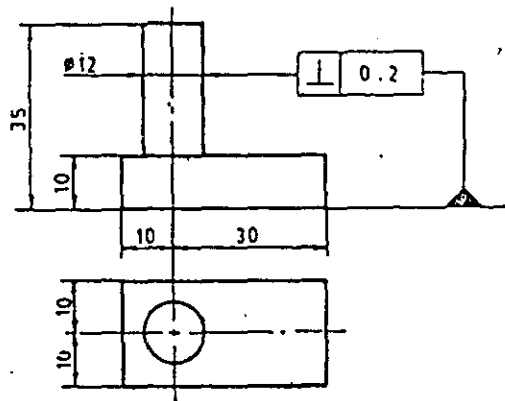


Fig-2

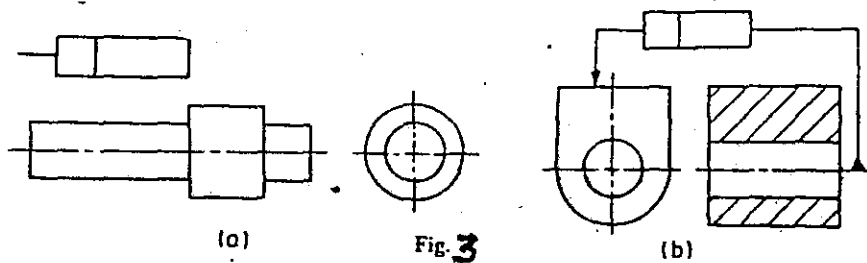


Fig. 3

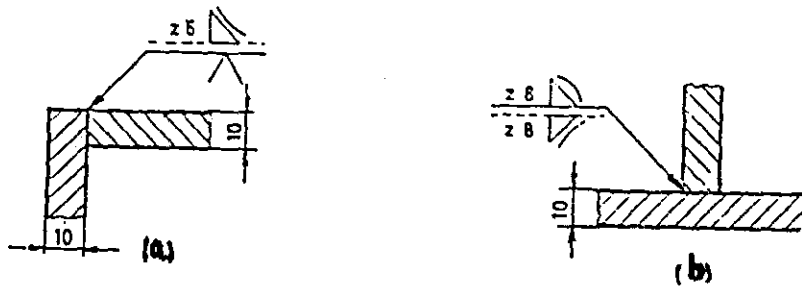
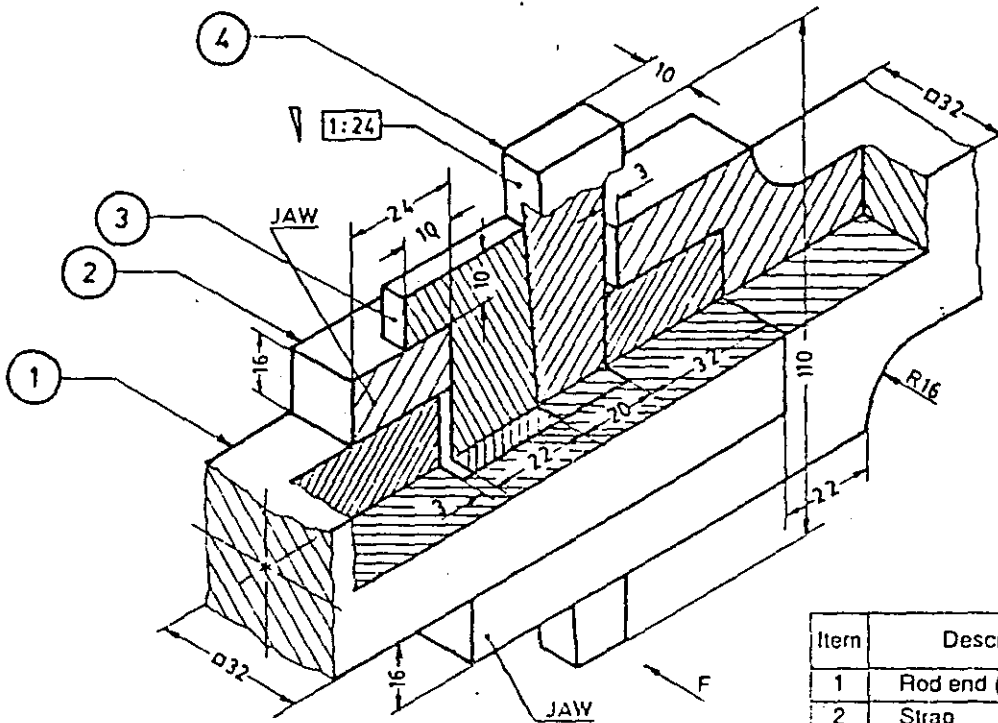


Fig-4



ITEM LIST

Item	Description	Qty.	Material
1	Rod end (Square)	1	M. S.
2	Strap	1	M. S.
3	Gib	1	M. S.
4	Cotter	1	M. S.

Fig-5
