

SEMESTER:FOURTH(IV)

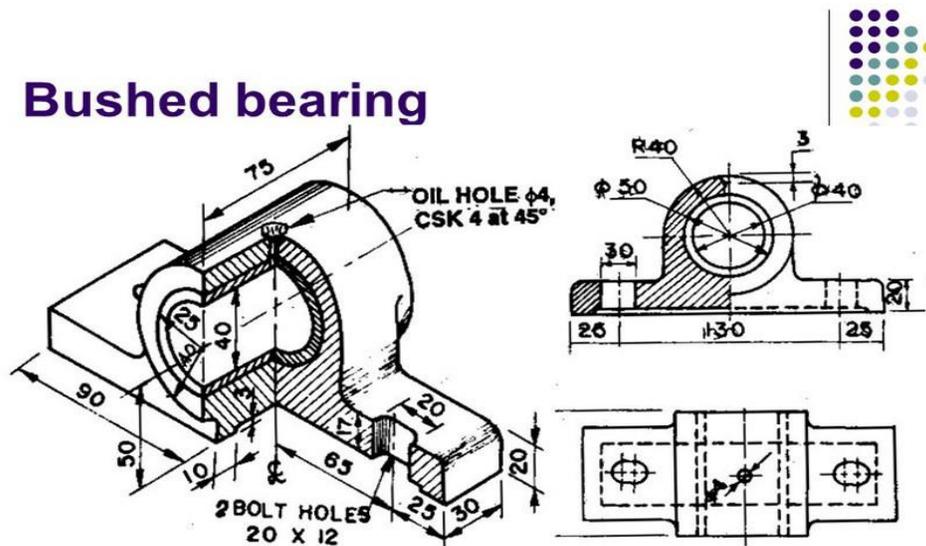
BRANCH:MECHANICAL ENGINEERING

SUBJECT:MACHINE DRAWING.

TOPIC: CHAPTER 6: SHAFT BEARINGS AND BRACKETS

## CHAPTER 6: SHAFT BEARINGS AND BRACKETS

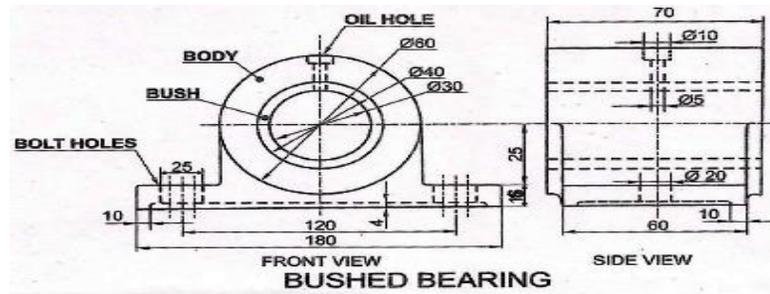
### BUSHED BEARING:



Note that the insertion of the shaft in this bearing is endwise.

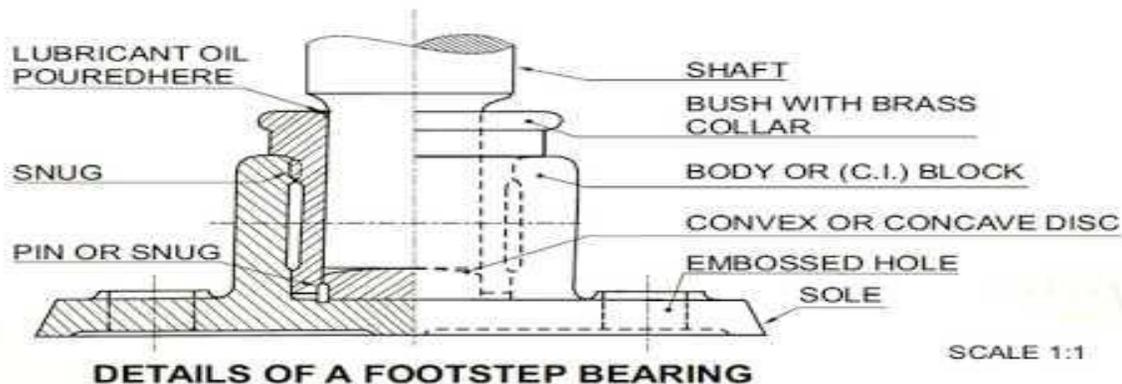
A plain bearing, also known as a bushing, is a mechanical element used to reduce friction between rotating shafts and stationary support members. Typically, a bushing relies on soft metal or plastic and an oil film to support the rotating shaft on the hardened shaft journal. Plain bearings are used primarily in machinery that has a rotating or a sliding shaft component. Also called a journal bearing, sleeve bearings, or sliding bearings, plain bearings have no rolling elements. Some are made of relatively soft metal, such as Babbitt, to protect the shaft journals. They are made of other materials as well, depending on the application and load requirements. Other bushings may be used for alignment jigs in drilling operations.

QUESTION: Draw the following views of a bushed bearing taking appropriate scale.



## FOOT STEP BEARING

### **FOOTSTEP BEARING OR PIVOT BEARING**

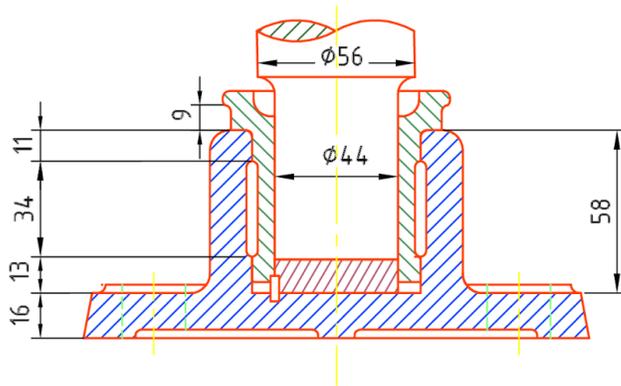


A footstep bearing is usually in the form of a block that has a cavity in which the lower part of a shaft can be fitted. It is designed to provide support to a vertical shaft or spindle.

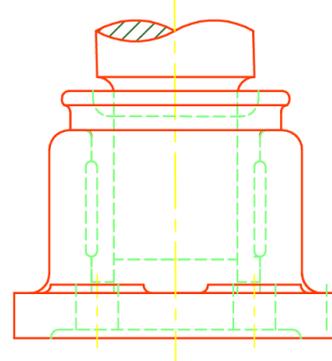
A footstep bearing has two parts. One of them is a tubular bushing which radially guides the spindle shaft. The second part is a bearing step which is located in the frontal end of the bushing. Both the sections are joined together in a compressive interlocking arrangement. In this way a unitary assembly is provided.

This assembled 2 piece footstep bearing can be combined with the structural elements of the spindle bearings, for instance, with a centering tube to give more support.

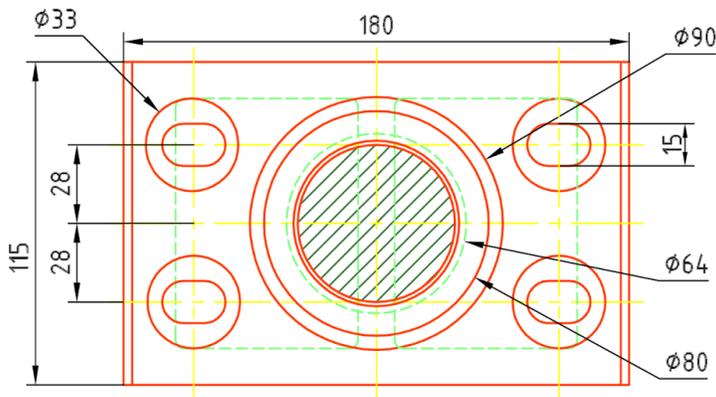
QUESTION: Draw the following views of a footstep bearing as per dimension provided



Sectional Front View



Side View

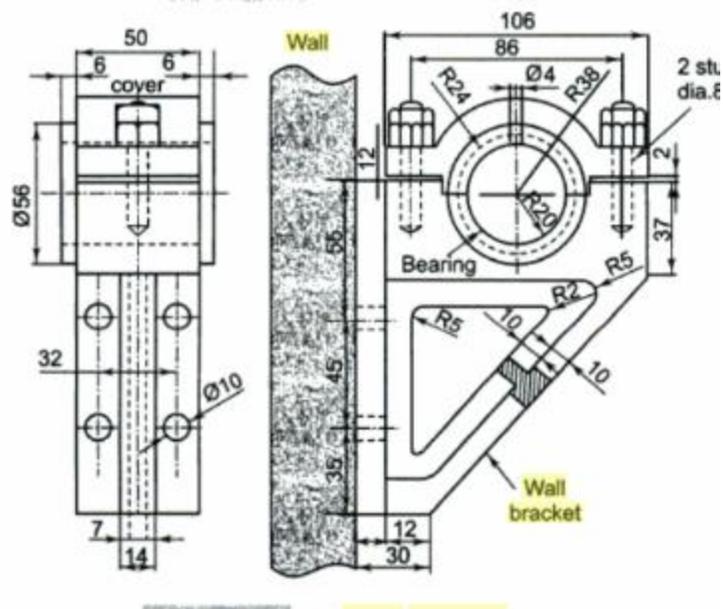


Top View

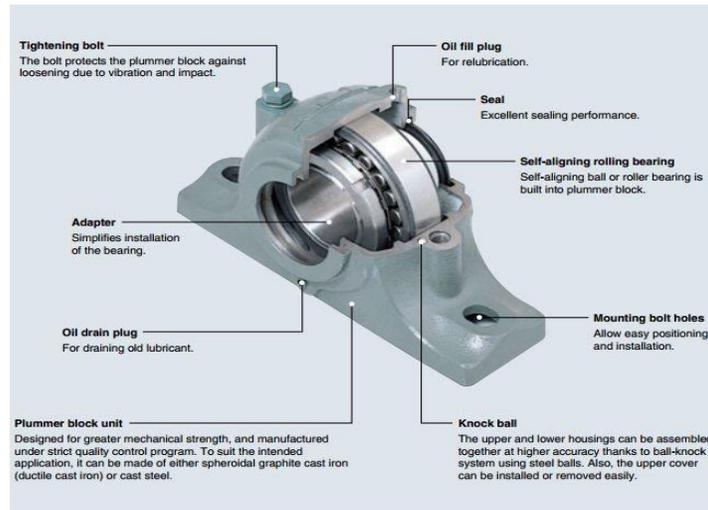
| S.No. | PART NAME   | MATERIAL  | NO. OFF |
|-------|-------------|-----------|---------|
| 1.    | BODY        | CAST IRON | 1       |
| 2.    | BUSH        | BRASS     | 1       |
| 3.    | DISC OR PAD | BRASS     | 1       |
| 4.    | SHAFT       | STEEL     | 1       |

## WALL BRACKET

Brackets are used to support beams, conduits, pipes etc. When the roofing work is finished for a portal structure, the overhang of the sheets is supported by brackets, The louvres which are essential for ventilation in a shed system are supported by brackets. The railings provided around a Walkway are supported by brackets. The typical cross-section of a bracket is channel. The best example of a brackets is the catenary support system used by railways.



# PLUMMER BLOCK:



A pillow block (or plummer block) is a pedestal used to provide support for a rotating shaft with the help of compatible bearings & various accessories. Housing material for a pillow block is typically made of cast iron or cast steel.

A pillow block usually refers to a housing with an included anti-friction bearing. A pillow block refers to any mounted bearing wherein the mounted shaft is in a parallel plane to the mounting surface, and perpendicular to the center line of the mounting holes, as contrasted with various types of flange blocks or flange units. A pillow block may contain a bearing with one of several types of rolling elements, including ball, cylindrical roller, spherical roller, tapered roller, or metallic or synthetic bushing. The type of rolling element defines the type of pillow block. These differ from "plummer blocks" which are bearing housings supplied without any bearings and are usually meant for higher load ratings and a separately installed bearing.

The fundamental application of both types is the same, which is to mount a bearing safely enabling its outer ring to be stationary while allowing rotation of the inner ring. The housing is bolted to a foundation through the holes in the base. Bearing housings may be either split type or solid type. Split type housings are usually two-piece housings where the cap and base may be detached, while others may be single-piece housings. Various sealing arrangements may be provided to prevent dust and other contaminants from entering the housing. Thus the housing provides a clean environment for the environmentally sensitive bearing to rotate free from contaminants while also retaining lubrication, either oil or grease, hence increasing its performance and duty cycle.

