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MATRIC NUMBER: **18/ENG05/010**

DEPT.: **MECHATRONICS**

COURSE: **ENG232**

OBJECTIVES

1. Reference Plane **(A)**
2. False **(B)**
3. Directly **(C)**
4. 60^{o} **(A)**
5. 60^{o} **(A)**
6. Rivet **(B)**
7. Crowning **(C)**
8. 90^{o} **(D)**
9. A Circle **(A)**
10. An Ellipse **(A)**
11. Cylinder **(C)**
12. Cone **(A)**
13. Pivot Bearing **(C)**
14. 55^{o} **(C)**
15. Horizontal Plane **(D)**

THEORY

1. A sectional view is represented by hatching, along the cutting plane at an eye angle of 45 degrees.
2. Principles of dimensioning

    a. All dimensional information necessary to define a part clearly and completely shall be shown directly on a drawing.
    b. Each feature shall be dimensioned once only on a drawing.

    c. Dimensions shall be placed on the view or section that shows clearly, the corresponding features

d. As far as possible, on a drawing, dimensions should be expressed in one unit only, preferably in millimeters, without showing the unit symbol (mm). Unit on the drawing, however, may be shown in a note

e. No more dimensions than are necessary to define a part shall be shown on the drawing.

f. No feature of a part shall be defined by more than one dimension in any one direction

g. Dimensioning to a center line should be avoided, except when it passes through the center of a hole.

3. A. **Half section:** a scale drawing of a section through a symmetrical object that shows only half the object.

B. **Full section** this is a scale drawing of a section through a symmetrical object that show the full object.

4. Leader lines can be terminated using arrowhead.

5. (a). **scale = 5:1** means a 50mm line is to be drawn at a scale of 5:1 that is 5 times more than the original size.

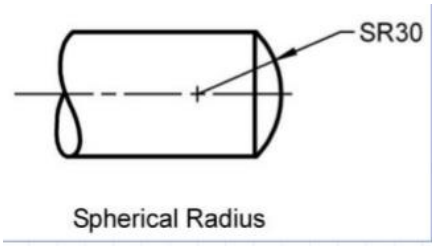
(b). **scale 1:10** means that the object is ten times smaller than in real life.

6. a. Ø = (diameter symbol)

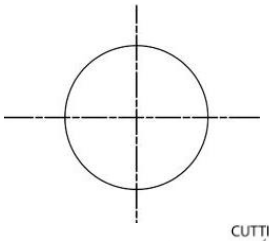
b. R= (radius).

c. Square =

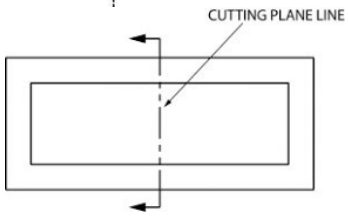
d. Spherical Radius =



e. Centre Line =



f. Cutting Plane Line

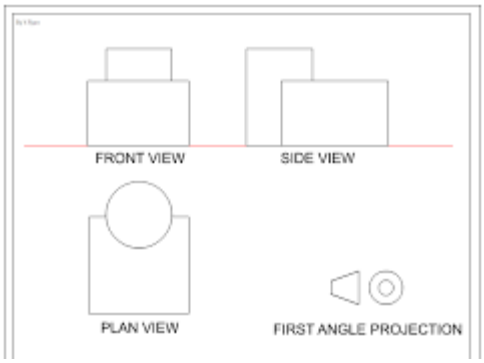


g. Long Break Line

7. Orthographic projection is a method of producing a number of separate two-dimensional inter-related views. These views are drawn mutually at right angles to each other. In engineering practice, orthographic projection is universally used to represent solid objects by two dimensional views, as many as are necessary to give all the information needed, clearly and accurately.

When is a projection of an object called an orthographic projection? This is when a shape is seen from either a first angle projection, when the view is seen on either first or second angle projection showing the front elevation side elevation and plan.

9a. **First angle projection**



In the first angle projection system, the object placed in the first quadrant in 1st angle, the object is between the observer and the plane of projection.

9b. **Third angle projection**

In third angle projection system the object placed in the third quadrant. In 3rd angle, the plane is between the observer and the object.