OLOGUNAGBA BRIGHT TOLUWALOPE

18/ENG04/062

ELECTCRICAL/ELECTRONICS ENGINEERING

ENG 232

ENGINEERING DRAWING II

## THEORY

1. How do you represent a sectioned surface on a drawing?

   A section of an object is produced by cutting an object by an imaginary plane, removing one or more parts and thus revealing a view of the effects of the dissection. The sectional view is thus represented by cross sectional view of the object drawn at an angle of 45˚ across the areas that are cut out. Sectional lines or hatching lines are thin lines having a similar tone as that of projection or dimension lines, are continuous across the entire surface of the sectional area and are evenly spaced approximately 10mm apart

2. List out the various principles to be followed while dimensioning a drawing
   - As far as possible, dimensions should be placed outside the view.
   - Dimensions should be taken from visible outlines rather than from hidden lines.
   - Dimensioning to a centre line should be avoided except when the centre line passes through the centre of a hole.
   - Each feature should be dimensioned once only on a drawing.
   - Dimensions should be placed on the view or section that relates most clearly to the corresponding features.
   - Each drawing should use the same unit for all dimensions, but without showing the unit symbol.
   - No more dimensions than are necessary to define a part should be shown on a drawing.
   - No features of a part should be defined by more than one dimension in any one direction.

3. Explain the terms, (a)half section, (b) Full section

   **(a) Half Section**: A half section is a view of an object showing one-half of the view in section. The diagonal lines on the section drawing are used to indicate the area that has been theoretically cut. These lines are called are called section lining or cross hatching. It is used to the exterior and interior of the part in the same view. The cutting plane line cuts halfway through the part and removes one quarter of the material.

   **(b) Full Section**: A full section is the most widely used sectional view. The cutting plane passes through the part. The section-lined areas are those portions that have been in actual contact with the cutting plane.

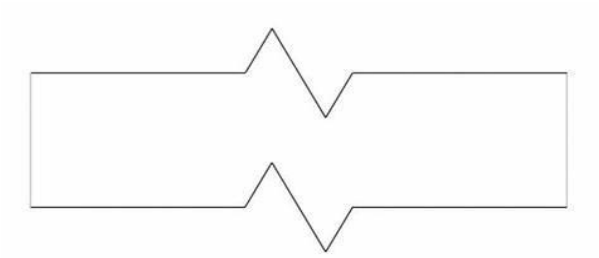
4. How are leader lines terminated?

   Leader lines are line that establishes a connection between a graphical representation of an item and some text. It can be terminated using arrow terminator and dot terminator. An arrow terminator is used to point to an edge of an item and the dot is used to pint to a face.

5. What do you understand by(a)Scale 5:1 (b) Scale1:10?
   (a) Scale 5:1 means the drawing will be five times in dimension of the original drawing.
   (b) Scale 10:1 means the drawing will be ten times in dimension of the original drawing.
6. Give the shape identification symbols for the following
   (a) diameter- Φ
   (b) radius – R
   (c)square - □
   (d) spherical radius- SR

   (i) Centre line: _____ _ _____ _ _____
   (ii) Cutting plane line:


   (iii) Long break:



7. What elements are to be considered while obtaining a projection and what is an orthographic projection.

   I. The object
   ii. The plane of projection
   iii. The point of sight
   iv. The rays of Sight

An Orthographic Projection is a means of representing three dimensional objects in two dimension. It is a form of parallel projection, in which all the projection lines are orthogonal to the projection plane.

8. When is a projection of an object called an orthographic projection?

A projection is called orthographic projection when the point of sight is imagined to be located at infinity so that the rays of sight are parallel to each other and intersect the plane of projection at right angle to it.

9. Explain the following, indicating the symbols to be used in each case:
   (a) First angle:

In this, the object is imagined to be in the first quadrant. Because the observer normally looks from the right side of the quadrant to obtain the front view.

The objects will come in between the observer and the plane of projection.

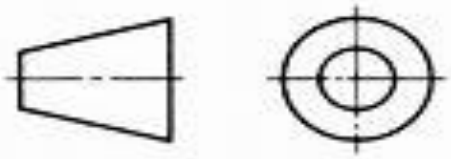
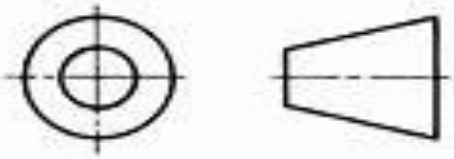
Therefore, in this case, the object is to be transparent, and the projectors are imagined ta be extended from various points of the object to meet the projection plane. First, these meeting points when joined in the order form an image

(b) Third angle:

In this, the object is imagined to be placed in the third quadrant.

Again, as the observer is normally supposed to look from the right side of the quadrant to obtain the front view, in this method, the projection plane comes in between the observer and the object.

Therefore, the plane of projection has to be assumed to be transparent. The intersection of this plan with the projectors from all the points of the object would form an image on the transparent plane.

| Projection | Symbol |
| --- | --- |
| First angle |  |
| Third angle |  |

OBJECTIVES

1. Reference plane (A)
2. False(B)
3. Directly (C)
4. 120˚ (B)
5. 60˚ (A)
6. Rivet (B)
7. Crowning (C)
8. 45˚ (B)
9. A Circle (A)
10. An Ellipse (A)
11. Cylinder (C)
12. Frustum (D)
13. Pivot Bearing (C)
14. 55˚ (C)
15. Horizontal Plane (D)