

SHEKONI OLUWASEYITAN  
BIOMEDICAL ENGINEERING  
18/ENG02/087  
ENG 232 ASSIGNMENT

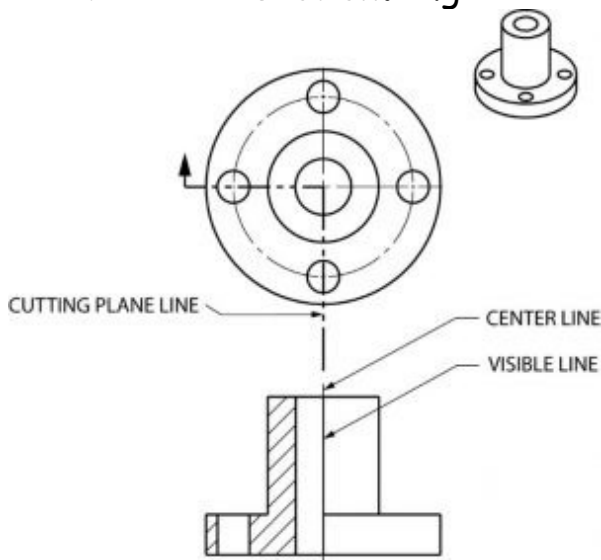
## THEORY

1. How do you represent a sectioned surface on a drawing?
  - Sectioning is the dividing or cutting of objects to give the viewer further details of the interior of said object. 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. They are represented by a cut on the drawing elevations (plan, front, end) usually with long-short dashes line. Ie a section plane.
2. List out the various principles to be followed while dimensioning a drawing.
  - The dimensions should be given on such view which illustrates the true shape and size of an object.
  - As far as possible the dimensions should be given outside a view but can be given inside as well if unavoidable.
  - All the dimensions are given in group form. Scattering of these is not correct.
  - The dimensions should be intelligibly written.
  - All the dimensions should be written parallel to the object line and the numbers should be written such that they could be read easily.
  - The dimensions should not be repeated unless necessary.
  - The unnecessary dimensions should be avoided.
  - The extension and dimension lines should not intersect in any case.
  - While giving dimension after completing a drawing, it should be kept in mind that no unit should be written with any number.
  - The numbers should be clear, legible, and intelligible.
  - The circle, arcs, and wholes should be compatible with their radius or diameter.
  - If dimensions are needed to be given in concentric circles, then try to make them on the front view and then write their dimensions.

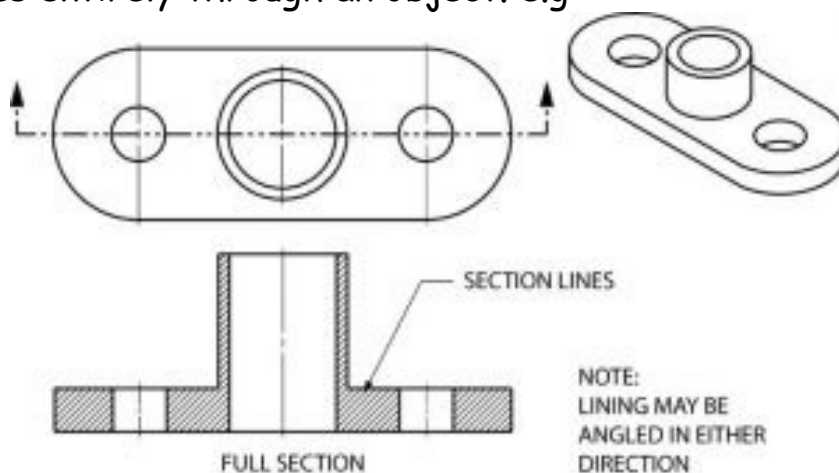
- The Leader Line should be used for writing dimensions of the circles which should illustrate their diameters.
- As far as possible, on a drawing, dimensions should be expressed in one unit only, preferably in millimeters, without showing the unit symbol (mm). Unit on the drawing, however, may be shown in a note
- Dimensions should be represented from the visible outlines, rather than from hidden lines

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

- A **half-section** is a view of an object showing one-half of the view in **section**. e.g



- A full section is a view of an object when a cutting plane line passes entirely through an object. e.g



4. How are leader lines terminated?

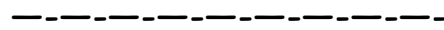


- Leader lines are terminated with arrow heads.

5. What do you understand by, (a) scale = 5:1 and (b) scale = 1:10?

- scale 5:1; this is multiplying the actual size of the drawing by 5 therefore increasing the size
- scale 1:10; this is multiplying the actual size of the drawing by 1/10 therefore decreasing the size.

6. Give the shape identification symbols for the following: (a) diameter, (b) radius, (c) square and (d) spherical radius.

(a) Centre line, (b) cutting plane line and (c) long break

- Diameter:  $\varnothing$
- Radius: R
- Square:  $\square$
- Spherical radius: SR
- Centre line: 
- Cutting plane line: 
- Long break: 

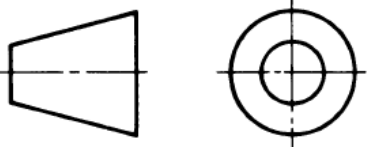
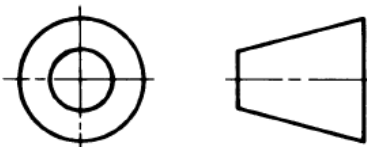
7. What are the elements to be considered while obtaining a projection and what is an orthographic projection?

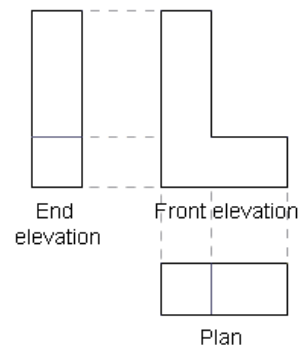
- An orthographic projection is a means of representing three dimensional objects with two dimensional drawings. The elements are the front view, side view and plan view

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

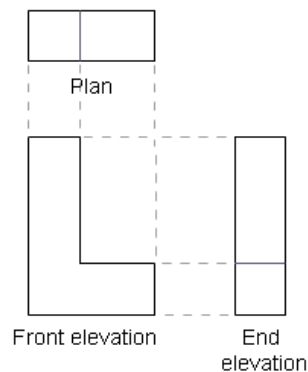
- When the figure is drawn in first or third angle elevation

9. Explain the following, indicating the symbol to be used in each case: (a) First angle projection, (b) Third angle projection
- First angle projection is a way of showing a 3D object on a 2D piece of paper, and it shows what a part looks like from each direction - top, bottom, left right. While the third angle projection is the opposite

Projection	Symbol
First angle	
Third angle	



**First Angle Projection**



**Third Angle Projection**



## OBJECTIVES

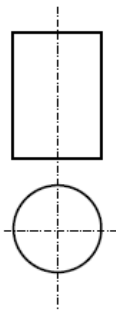
1. To project the auxiliary view, an imaginary plane known as .....  
a) Reference Plane  
b) Principle plane  
c) Normal plane  
d) Inclined plane
2. Reference plane is parallel to the direction of view  
a) True  
b) False
3. Dimension of one side of the inclined surface can be.....projected on the reference plane  
a) Indirectly  
b) Equally  
c) Directly  
d) Normally
4. In isometric projection the three edges of an object are inclined to each other at  
(a)  $60^\circ$  (b)  $120^\circ$  (c)  $100^\circ$  (d)  $90^\circ$
5. The angle between the flanks of a metric thread is  
(a)  $60^\circ$  (b)  $90^\circ$  (c)  $75^\circ$  (d)  $55^\circ$
6. Which one among the following represents a permanent fastener  
a) Nut b) Rivet c) Screw d) Bolt
7. The convexity provided on the rim of the solid web cast iron pulley is called  
a) Bending b) Curving c) Crowning d) Riveting
8. Section lines are generally inclined with the base, at an angle of  
a)  $30^\circ$  b)  $45^\circ$  c)  $60^\circ$  d)  $90^\circ$
9. The isometric view of a sphere is always  
a) a circle b) an ellipse c) a Parabola d) a Semicircle

10. In isometric projection, the four center method is used to construct

- a) an ellipse b) a square c) a triangle d) a rectangle

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(i) With respect to the elevation and plan given below, name the solid

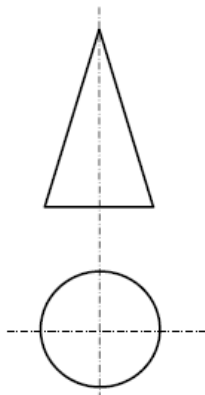


- (a) Cone  
(b) hexagonal prism  
(c) cylinder  
(d) hexagonal pyramid

Figure 1 answer C

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(v) With respect to the front view and top view given below, name the solid



- (a) Cone  
(b) Cylinder  
(c) Cube  
(d) Frustum

Figure 2 answer A

13. A footstep bearing is a

- a) journal bearing b) thrust bearing c) pivot bearing d) pedestal bearing

14. The angle between the flanks of B.S.W. thread is

- a) 60° b) 65° c) 55° d) 75°

15. Top view is projected on the

- a) Vertical Plane b) Corner Plane c) Side Plane d) Horizontal Plane