18/ENG07/002

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## THEORY

1.) ***To represent a sectioned surface on a drawing,*** The surface which was cut off will be shaded by drawing thin lines inclined to the base of the drawing at 45 degrees , using your 45 by 45 degrees set square. Take note, if there's a hole in the diagram, before sectioning, the hole in the sectioned part won't be shaded, it's just the surface which the sectioning line touches.

2.) ***Principles to be followed when dimensioning***

- Dimensioning lines should be thin continuous lines
- The Dimensioning lines should not touch the drawing, about 2mm or 3mm should be the distance between the drawing and dimensioning lines
- All dimension lines should maintain the same distance from the drawing
- The arrow head should approximately be a triangle and should be filled up
- The space between two rows of dimension should be 12mm
- Center lines should not be used for dimensioning
- Dimensions should be quoted in millimeter to the minimum number of significant figures. For example, 19 and not 19.0

### 3.) *HALF SECTION*

Half section 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. The line that separates the different types (interior and exterior) may be a centerline or a visible line

### *FULL SECTION*

In a full section, the cutting plane line passes fully through the part. Normally a view is replaced with the full section view. The section-lined areas are those portions that have been in actual contact with the cutting- plane

4.) Leader line are terminated by the use of arrow heads

5.) When a scale is 5:1, it means that everything is in reality five times as small. In other words, 1cm in drawing is 0.2cm in reality
When a scale is 1:10, it means that the object is 10 times smaller than in real life scale 1:1. You could also say, 1 unit in the drawing is equal to 1o units in real life.

6.) ***Shape Identification Symbols***
Diameter; Ø
Radius; R
Square; □
Spherical Radius; SR

**7.)** Elements to be considered when obtaining a projection;

Plan

Front Elevation

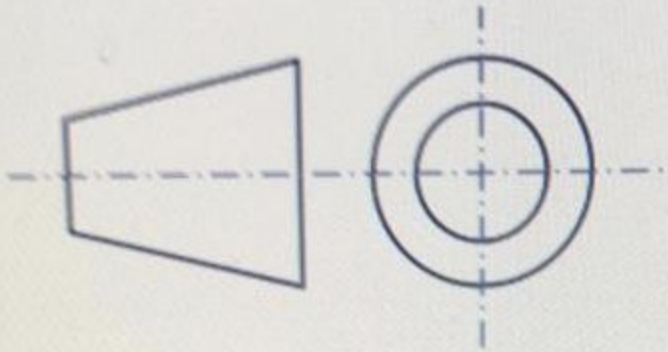
End Elevation

**Orthographic Projection,** is a projection of a single view of an object (such as a view of the front) onto a drawing surface in which the lines of projection are perpendicular to the drawing surface. Orthographic projection is a graphical method used to represent three-dimensional structures or objects into different perspective projection images called views. The orthographic view typically consists of the top view, front view, and the side view.

**8.)** A projection of an object is known as orthographic when its drawn in a 2-D format, and the plan, front elevation and end view are drawn separately, with parallel lines connecting the three together.

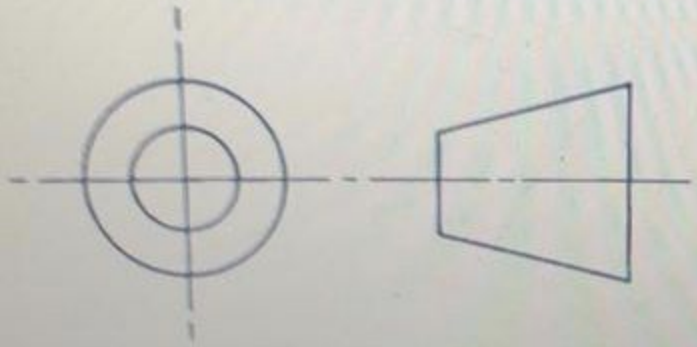
**9.)** **FIRST ANGLE PROJECTION**

First angle projection is one of the methods used for orthographic projection drawings and is approved internationally except the United States. In this projection method, the object is placed in the first



## THIRD ANGLE PROJECTION

In third angle projection, the 3D object to be projected is placed in the third quadrant and is positioned behind the vertical plane and below the horizontal plane.



## OBJECTIVES

1.) **A** - Reference
2.) **B** – False
3.)
4.) **A** – 60
5.) **A** – 60
6.) **B** – Rivet
7.) **C** – Crowning
8.) **B** – 45
9.) **B** – An Ellipse
10.) **A** – An Ellipse
11.) **C** – Cylinder
12.) **A** – Cone
13.) **C** – Pivot Bearing
14.) **C** – 55
15.) **D** – Horizontal Plane