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**MATRIC NO: 18/ENG5/061**

**DEPARTMENT: MECHATRONICS ENGINEERING**

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

**Because the sketch needs a sectional and they are used to set off a section and they are usually shown with hidden details**

**2 List out the various principles to be followed while dimensioning a drawing**

1. **All dimensions, extension and leader lines should be thin and sharp**
2. **Extension lines indicate the points between which the dimension figures apply**
3. **Each dimension should be terminated by arrowheads touching the extension lines and pointing in opposite direction**
4. **Dimensions shown with dimension lines and arrowheads should be placed to be read from the bottom of the drawing**
5. **All dimensions should be given in decimal format**
6. **When all dimensions on a drawing are given in inches, the inch marks are omitted the same applies to millimetres**
7. **A dimension line should never coincide with an object line or a centre line**
8. **Crossing of extension lines or dimension lines should be avoided if possible**
9. **Dimensions should be at least 3/8 from the object outline then equally spaced at least ¼ apart**
10. **Dimensions are preferably placed outside the outlines of the views.**
11. **Lettering should always be placed horizontal on the page , to be read from the bottom of the drawing**

**3 Explain the terms half section and full section**

**Half section: It is a view of an object showing one-half of the view in section, it is used when an object is symmetrical in both outside and inside details.**

**Full section: It is the imaginary cutting plane which passes through the entire object splitting the drawn object in two with the interior of the object revealed**

**4 How are leader lines terminated?**

1. **It can be terminated using an arrow head which is used to point and edge**

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

**Scale 1:5 A 50mm line is drawn to scale and it is five times less than its original size.**

**Scale 1:10 This means that the object is ten times smaller in real life.**

**6 Give the shape identification symbols for the following(a) diameter, (b) radius, (c) square (d) spherical radius (e)center line (f) cutting plane line and (g) long break**

1. **Diameter (b) radius**

**C Square (d) spherical radius**

**E Centre line (f) Cutting plane line**

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

**Orthographic projection: This is a method of projection in which and object is depicted using parallel lines to project its outline on to a plane.**

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

**It is when the principal planes or axes of an object are parallel to the projection plane then we can say its an orthographic projection.**

**9 Explain the following, indicating the symbol to be used in each case:(a) First angle projection (b)Third angleprojection**

**First angle projection: It is a method of creating 2D drawing of a 3D object the object is placed in the first quadrant and is positioned in front of the vertical plane and above the horizontal plane.**

**Third angle projection: It is a method of orthographic projection which is a technique in portraying a 3D design using a series of 2D views.**

**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 Frustrum(d)**

**13 Pivot Bearing(c)**

**14 53(c)**

**15 Horizontal plane (d)**