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DEPT: CIVIL ENGINNEERING

MATRIC NO: 18/ENG03/022

THEORY ANSWERS

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

A sectioned surface is represented by drawing thick lines at angle 45° to the drawing on the sectioned surface, (this is done with the use of a tee square and 45° set square when drawn on a t board).

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

1. All dimension, extension, and leader lines should be thin, sharp, dark lines. (5mm)

2. Extension lines indicate the points between which the dimension figures apply. They are drawn perpendicular to the dimension lines, start with a visible gap between them and the object, and terminate beyond the last arrowhead.

3. Each dimension should be terminated by arrowheads touching the extension lines and pointing in opposite directions. Arrowheads are drawn freehand with lead. The line should be broken only at the approximate center for the dimension figures.

4. Dimensions shown with dimension lines and arrowheads should be placed to be read from the bottom of the drawing (unidirectional system).

5. All dimensions should be given in decimal format. When dimensions are given in inches, leading zeros are omitted from dimension values less than 1.00 6. When all dimensions on a drawing are given in inches, the inch marks (") are omitted, the same applies to millimeters. If metric units are used, the word METRIC will appear boxed in a spot toward the lower portion of the drawing sheet.

7. A dimension line should never coincide with an object line or a center line, nor should it be an extension of these lines. Both, however, may be used as extension lines.

8. Crossing of extension lines or dimension lines should be avoided if possible. Where such crossings are unavoidable, there should be no break in either of the lines. However, if extension lines cross dimension lines through the arrowheads, the extension line may be broken.

9. Dimensions should be at least (10 mm) from the object outline, then equally spaced at least (6 mm) apart. A continuous series of dimensions should be aligned rather than staggered. Standard practice is to place the shortest dimensions nearest to the object and space adjacent parallel dimension lines further away from the object in order of their length.

10. Dimensions are preferably placed outside the outlines of the views.

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

(a)A half section exposes the interior of one half of an object while retaining the exterior of the other half. Half sections are used mainly for symmetric objects or assembly drawings. A center-line is used to separate the two halves. Hidden lines should not be shown on either half.

(b)A full section is the most widely-used sectional view. If the imaginary cutting plane passes through the entire object, splitting the drawn object in two with the interior of the object revealed, this is called a "full section."

4. How are leader lines terminated?

Leader lines are thin, solid lines that terminate in an arrowhead or dot. Use arrowheads when leader lines terminate at the outline of an object. Use dots when leader lines terminate within the outline of the object or on the surface of the object.

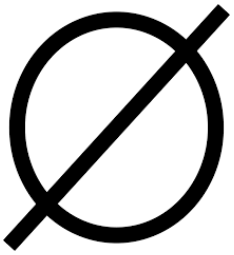
5. What do you understand by, (a) scale = 5:1 and (b) scale = 1:10?

(a) It means that everything is relatively five times bigger than the original e.g. 1cm in the drawing is 0.2 cm in reality

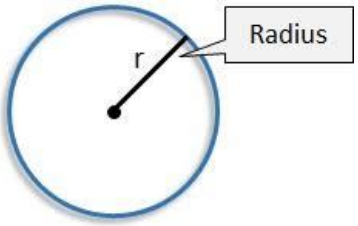
(b) It means that everything is relatively ten time smaller than the original e.g. 4cm in the drawing is 40cm in reality

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

(a)



(b)



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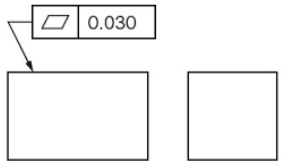

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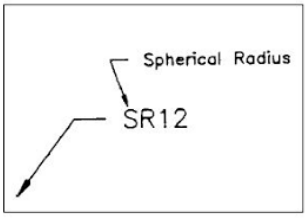


7. What are the elements to be considered while obtaining a projection and what is an orthographic projection?

An orthographic projection is a method of projection in which an object is depicted using parallel lines to project its outline on to a plane.

Elements to consider include:

- drawing size
- Drawn shape (circular, cylindrical, etc.)
- hidden details
- views

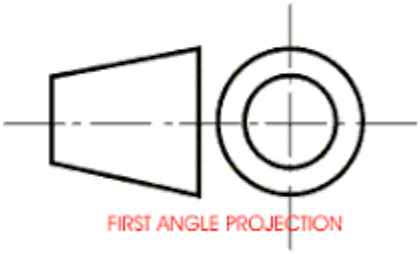
8. A projection of an object called an orthographic projection?

When the first or third elevation of the object has been assembled to form a 3-dimensional object with respect to its plan, front, and end

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

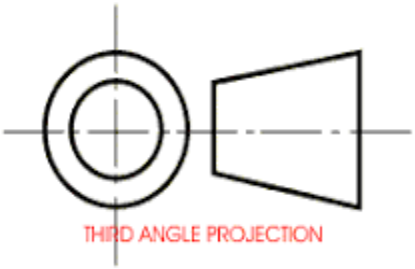
(a) It is a type of projection in which the object views are as follows:

- the view from the front is in the middle
- the view from the left is on the right
- the view from the right is on the left
- the view from the top is on the bottom
- the view from the bottom is on the top
- The view from the rear is on the far right.



(b) It is a type of projection in which the object views are as follows:

- A view from the left of the front view is drawn on the left.
- A view from the right is drawn on the right.
- A view from the top of the front view is drawn on the top.
- A view from the underside is drawn on the bottom.



OBJECTIVES

1. B
2. B
3. C
4. A
5. A
6. B
7. C
8. B
9. B
10. A
11. C
12. A
13. C
14. C
15. D