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18/ENG050/41
MECHATRONICS ENGINEERING

1. Lines inclined at 45 degrees to the horizontal.
2. a. the dimension should be given on each view which illustrate the true shape and size of the object.
   b. as far as possible the dimension should be given outside a view but can be given inside as well if unavoidable.
   c. all the dimensions are given in group form scattering of these is not correct.
   d. the dimensions should be intelligibly written.
   e. all the dimensions should be written parallel to the object line and the numbers should be written such that they could be read easily.
   f. the dimensions should not be repeated unless necessary.
   g. the unnecessary dimensions should be avoided
   h. the extensions and dimensions lines should not interest in any case.
   i. the numbers should be clear, legible, and intelligible.
   j. the circle, the arcs and the whole should compatible with their radius of diameter.

3. a. Half section is used to the exterior and interior of the part in the same view. The cutting plane line cuts half way through the part and removes one quarter of the material. The line that seperates the different types (interior and exterior) may be a center line or visible line.
   b. full section: in full section, the cutting plane line passes fully through the part. Normally a view is replaced with the full section view. The section lined area are those portion that have been in actual contact with the cutting plane.

4. a. a dot is used if the line ends with the outline of the part.
   b. an arrow is used if the line touches the outline or center line of a feature or without either an arrow or dot if the line touches a dimension.
   c. architectural tick is used for referring to multiple parallel edges.

5. a. a 500mm line is to be drawn using a scale of 5:1 that is 5 times more than its original size. The measurement 500mm is multiple by 5 to give 250mm. a 250mm line is drawn.

b. a drawing of scale 1:10 means that the object is 10 times smaller the in real life scale 1:1. You can also say; 1 unit in the drawing is equals to 10unit I real life.

6.a. radius-R

b. spherical radius- SR

c. diameter-ø

d. center line- CL or ℄ or

e. square- □

f. cutting plane line-

g. long break line-

7a. 1. Plan
2. front elevation
3. end elevation

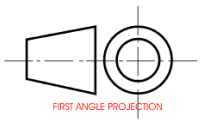
7b. orthographic projection a method of projection in which an object is depicted using parallel lines to project its outline on to a plane.. Usually a front, side and plan view are drawn so that a person looking at the drawing can see all the important sides. It consist of merely projecting point.

8. a projection is called orthography when the object are perpendicular to the projection plane.

9a. first angel projection: 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.

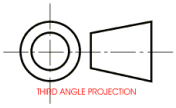


9b. third angel projection-In this, the object is imagined to be placed in the third quadrant.

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.

This is the principle of the third angle projection



OBJECTIVES

1. A. reference plane.
2. A. true.
3. D. normally.
4. A. 60 degrees.
5. A. 60 degrees.
6. B. rivet.
7. C. crowning.
8. B. 45 degrees.

9. B. ellipse.
10. A. an ellipse.
11. C .cylinder.
12. A. cone.
13. C. pivot bearing.
14. C. 55 degrees.
15. D. horizontal plane.