i) You represent a sectioned surface by hatching it.

ii) Each dimension should be terminated by arrowheads touching the extension lines and pointing in opposite directions. Arrowheads are drawn freehand with 7mm | H6 lead.

iii) Dimensions shown with dimension lines and arrowheads should be placed to be read from the bottom of the drawing.

iv) All dimension, extension and leader lines should be thin, sharp, dark lines (5mm|2H)

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

vi) 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 exterior lines.

3) Half section: The view of an object showing one half of the view in section.
Full section: The view of an object made by passing the straight cutting plane completely through the part.

4) A leader line is terminated in a horizontal line (bar) with a note at one end.

5) (a) Scale 5:1 – means size of the real object was reduced by a factor of 5 on the drawing
(b) Scale 1:10 – means the size of the real object was ~~reduced~~ increased by a factor of 10 on the drawing

c) diameter - Ø
radius - R
square - □
spherical radius - SR

centre line - — · — · — · —
cutting plane - ↓— · — · — · —↓
long break - —∿—∿—∿—

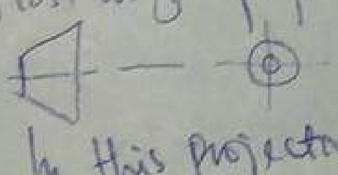
3) ① The visible edges and the intersection: of the surfaces are shown by object lines. But the hidden edges are shown by dotted lines.
② The centre lines of the symmetrical parts like whole cylinder etc should be clearly shown.
③ Dimensions which are parallel to the direction of viewing will not be seen.

4) Edges which are parallel to the direction of viewing are seen as points/vertices. Surfaces which are parallel to it are seen as lines.

5) Orthographic projection is a common method of representing three-dimensional objects, usually by three two-dimensional drawings in each of which the object is viewed along parallel lines that are perpendicular to the plane of the drawing.

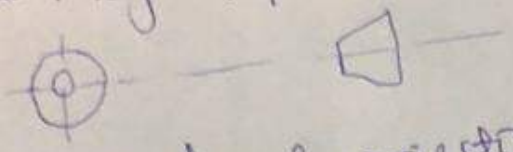
8) If the projection from the object are perpendicular to the projection plan, then such a projection of the object is known as orthographic projection.

9) First angle projection.



In this projection, the object is placed in the first quadrant and is positioned in front of the vertical plane and above the horizontal plane. This projection is recognized internationaly except in the United States

Third Angle Projection.



In the 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. This projection method is mainly used in the United States and in Japan.

Objective Questions

1) -> A
2) = A
3) = C
4) = B
5) = A
6) = D
7) = C
8) = B
9) = A
10) = A
11) = C
12) = A
13) = D
14) = D
15) = D