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QUESTION 1

The view obtained by cutting an object with an imaginary cutting plane is called **Sectional View** .The surface produced by cutting the object by the section plane is called **Section**. It is indicated by thin section lines uniformly spaced, generally at an angle of 45'.

QUESTION 2

*** PRINCIPLES OF DIMENSIONING**

1. All dimension, extension, and leader lines should be thin, sharp, dark lines (.5mm/2H).
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 (~1/32") between them and the object, and terminate 1/8" (3.2 mm) 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 .7mm/HB 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 3/8" (10 mm) from the object outline, then equally spaced at least 1/4" (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. (See rule #11)

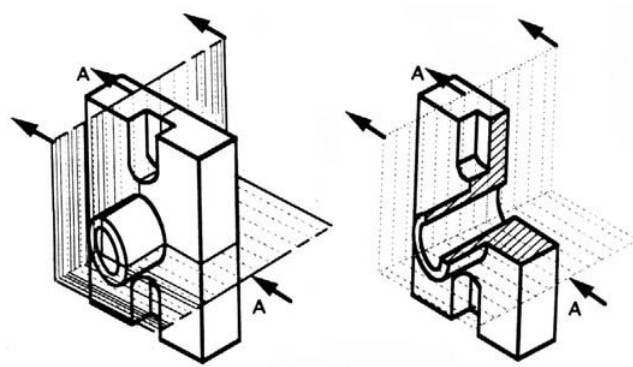
11. When placement outside the views will result in (a) dimensions too far from the distance they indicate, (b) long and confusing extension lines or leader lines that cross other lines of the drawing, or (c) any confusion in understanding where the dimension applies, they may be placed inside the view and close to the distance they indicate.

12. As the distance dimensioned becomes less than about 1/2" (12.7 mm), the space between extension lines becomes too small for both arrowheads and figures. For these small dimensions the methods shown may be used. Each dimension should have two arrowheads associated with it, pointing in opposite directions. Dimensions can 'share' arrowheads. The following depicts appropriate forms for linear dimensions.

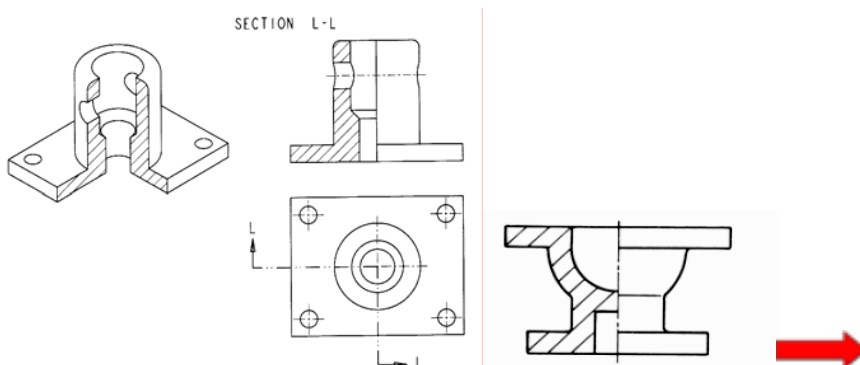
QUESTION 3

HALF SECTION

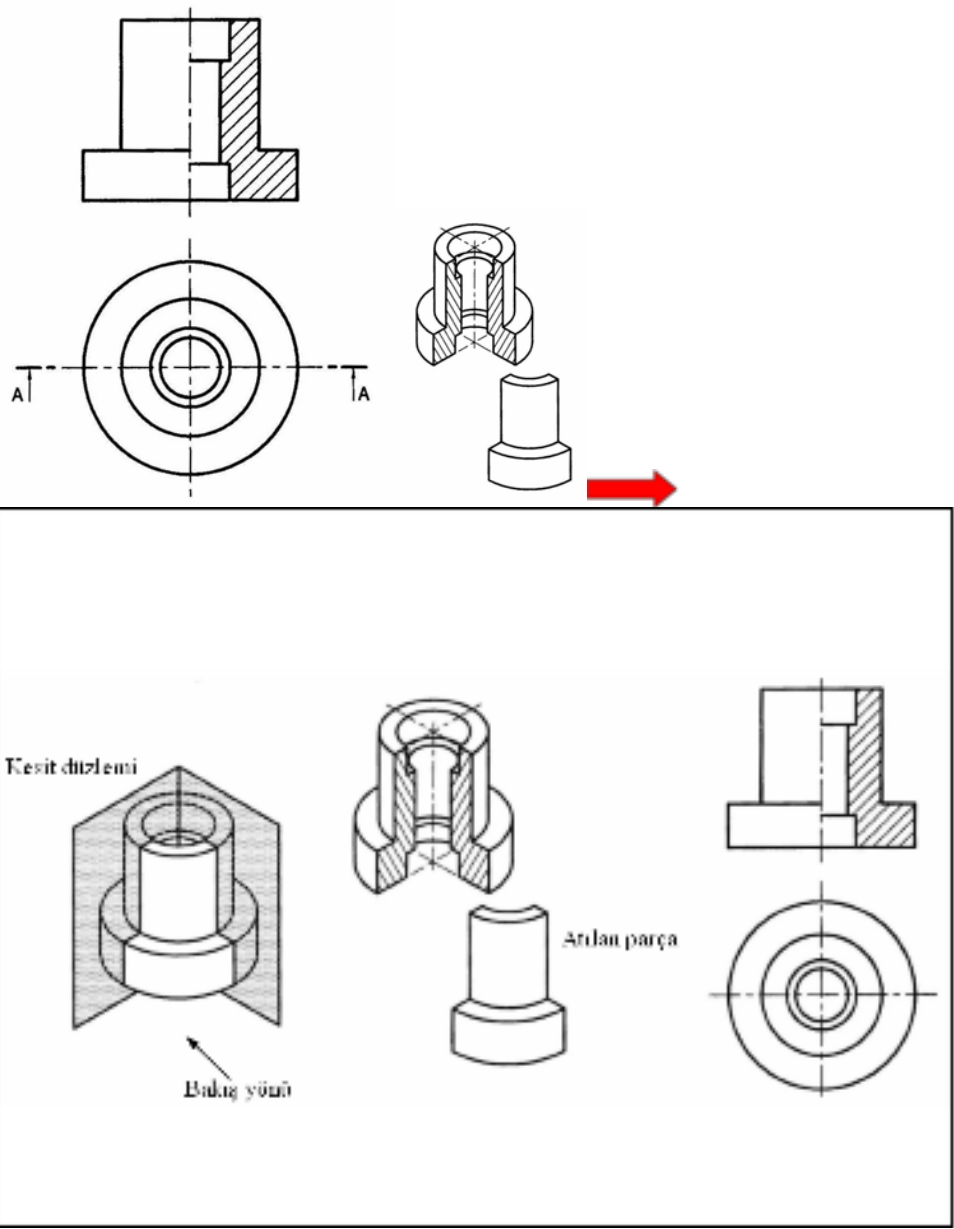
- A half-section is a view of an object showing one-half of the view in section.



- Symmetrical parts can be shown in **half** sections.
- **Half section without hidden lines**



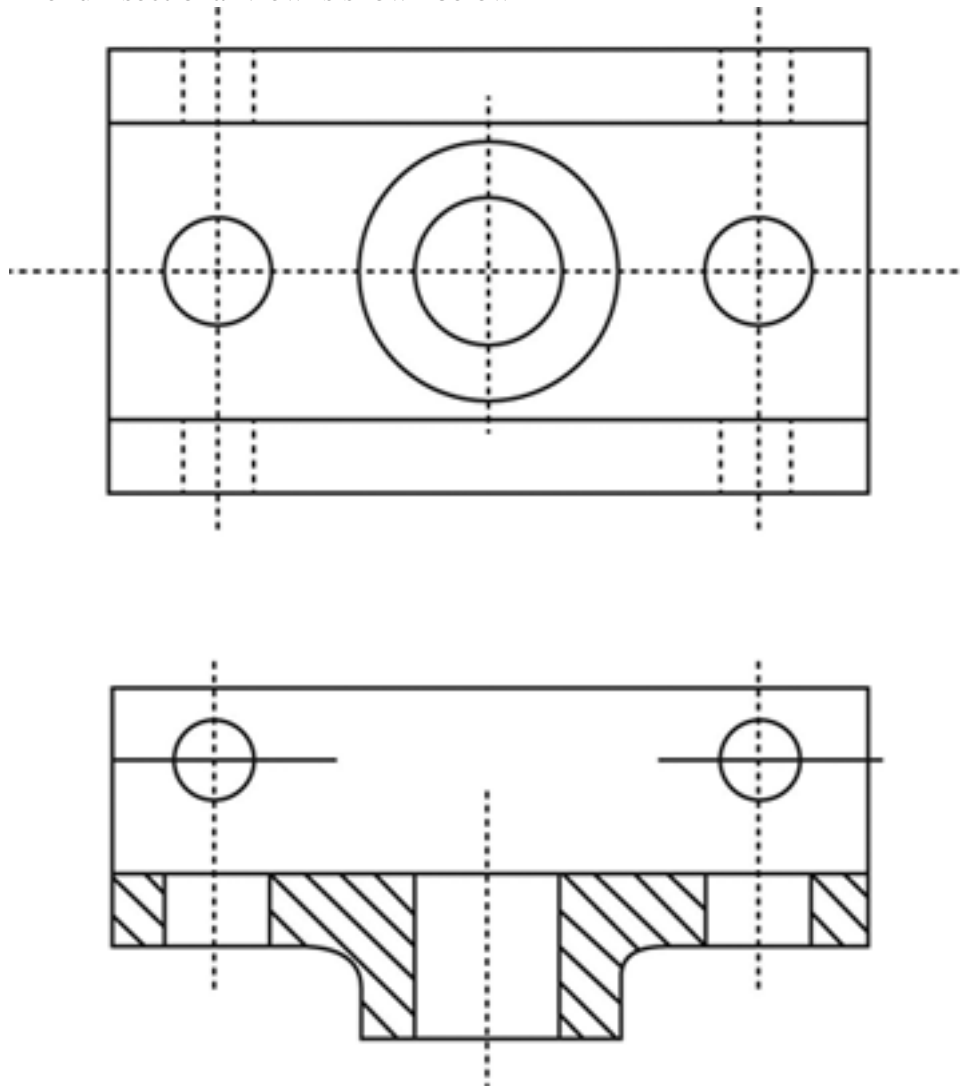
- Half sections are commonly used to show both the internal and outside view of symmetrical objects.



FULL SECTION

In this view, the section plane is across the object when the cutting plane is right.

The full-sectional view is shown below



QUESTION 4

Leader Lines are ended with an arrowhead

QUESTION 5

- (a) A 50mm line is to be drawn at a **scale** of **5:1** (ie 5 times more than its original size).
- (b) A drawing that shows a real object with accurate sizes reduced or enlarged by a certain amount (called the **scale**). ... Example: this drawing has a **scale** of "**1:10**", so anything drawn with the size of "1" would have a size of "10" in the real world, so a measurement of 150mm on the drawing would be 1500mm.

QUESTION 6

DIAMETER : The **symbol** or variable for **diameter**, \varnothing , is sometimes used in technical drawings or specifications as a prefix or suffix for a number (e.g. " \varnothing 55 mm", indicating that it represents **diameter**).

RADIUS : R

SQUARE : 

SPHERICAL RADIUS: SR

QUESTION 7

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

QUESTION 8

Orthographic projection, 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. For example, an orthographic projection of a house typically consists of a top view, or plan, and a front view and one side view (front and side elevations).

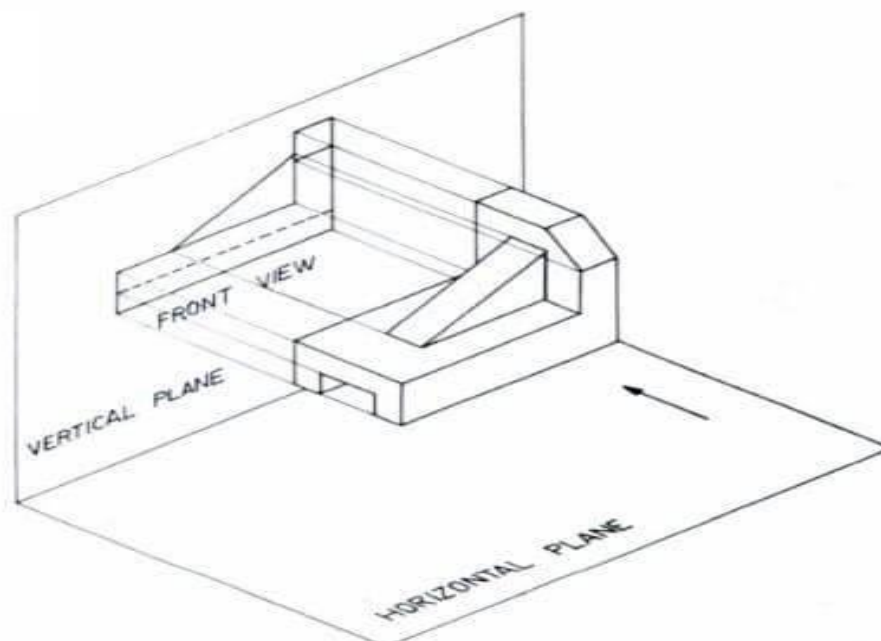
QUESTION 9

FIRST ANGLE PROJECTION & FIRST ANGLE PROJECTION SYMBOL

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 to 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

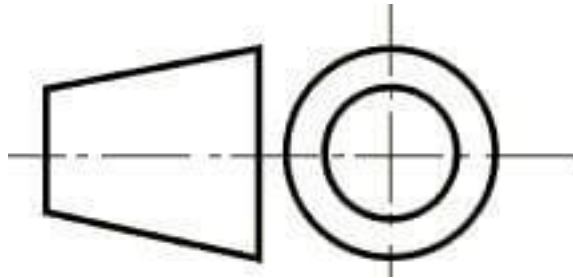


Principle first angle projection view

This is the principle of the first angle projection. Thus in the first angle projection, any view is so placed that it represents the side of the object away from it.

First angle projection is mostly used throughout all parts of Europe so that called **European projection**.

Most important of **First angle projection symbol**



First angle projection symbol

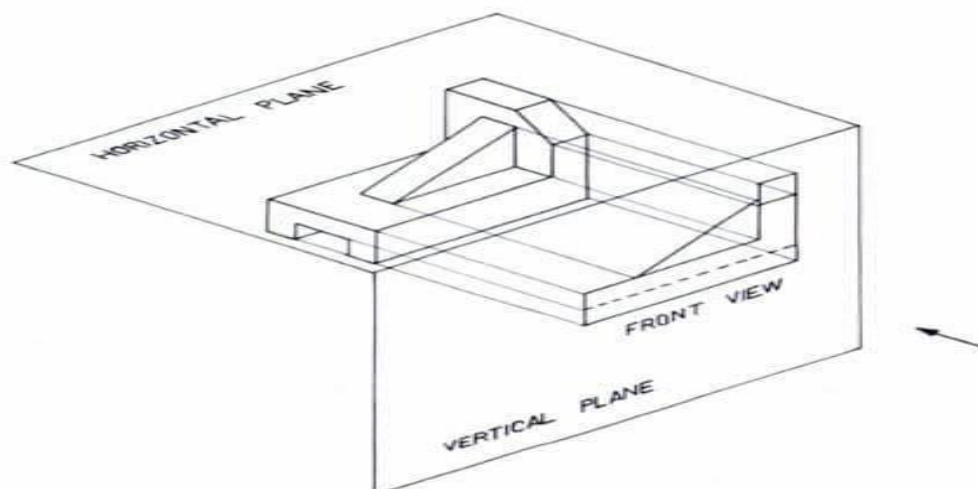
2. Third angle projection & Third angle projection symbol

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.

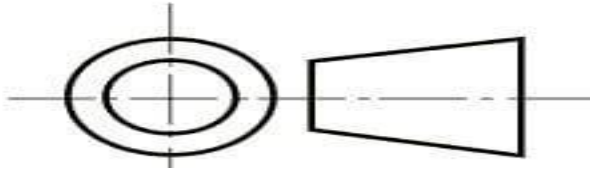
This is the principle of the third angle projection



Principle third angle projection view

Thus it is seen that in the third angle projection any view is so placed that it represents the side from the object nearest to it

Most important of **Third angle Projection symbol**



Third angle Projection symbol

The third angle is the system in used North America and alternatively described as American projection.

OBJECTIVES

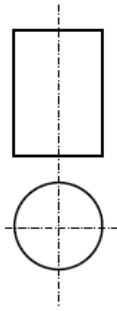
1. To project the auxiliary view, an imaginary plane known asA.....
 - a) Reference Plane
 - b) Principle plane
 - c) Normal plane
 - d) Inclined plane

2. Reference plane is parallel to the direction of view...B.....
 - a) True
 - b) False

3. Dimension of one side of the inclined surface can be.....C.....projected on the reference plane
 - a) Indirectly
 - b) Equally
 - c) Directly
 - d) Normally

4. In isometric projection the three edges of an object are inclined to each other at.....B.....
(a) 60° (b) 120° (c) 100° (d) 90°
5. The angle between the flanks of a metric thread is.....A.....
(a) 60° (b) 90° (c) 75° (d) 55°
6. Which one among the following represents a permanent fastener.....B...
a) Nut b) Rivet c) Screw d) Bolt
7. The convexity provided on the rim of the solid web cast iron pulley is called.....C.....
a) Bending b) Curving c) Crowning d) Riveting
8. Section lines are generally inclined with the base, at an angle of...B.....
a) 30° b) 45° c) 60° d) 90°
9. The isometric view of a sphere is always...B.....
a) a circle b) an ellipse c) a Parabola d) a Semicircle
10. In isometric projection, the four center method is used to construct.....A...
a) an ellipse b) a square c) a triangle d) a rectangle

(i) With respect to the elevation and plan given below, name the solid

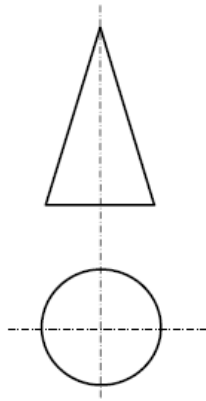


- (a) Cone
- (b) hexagonal prism
- (c) cylinder
- (d) hexagonal pyramid

ANSWER:A

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(v) With respect to the front view and top view given below, name the solid



- (a) Cone
- (b) Cylinder
- (c) Cube
- (d) Frustum

ANSWER:C

13. A footstep bearing is a...A.....

- a) journal bearing b) thrust bearing c) pivot bearing d) pedestal bearing

14. The angle between the flanks of B.S.W. thread is...C....

- a) 60° b) 65° c) 55° d) 75°

15. Top view is projected on theD.....

- a) Vertical Plane b) Corner Plane c) Side Plane d) Horizontal Plane

