

# ISOMETRIC PROJECTIONS

# 15

## 15-1 INTRODUCTION

Isometric projection is a type of single view projection in which a pictorial view is obtained by keeping the object in such a way that all the three mutually perpendicular geometrical axes are equally inclined to the plane of projection. The projectors follow the rules of multi-view projections i.e. they are parallel to each other and perpendicular to the plane of projection.

In multi-view orthographic projections, each view provides information of two axes (length & breadth or length & height or breadth & height). For a complete understanding, there is always a need of more than one view of the object. These views can only be correctly interpreted and visualized by those persons who have a good knowledge of principles used for these projections. Whereas in isometric projection, a single view is drawn in such a manner that it gives an overall view of the object at the first sight. Thus, it is necessary to draw a pictorial view of one kind or the other so as to enable a common man to understand.

### MULTIPLE CHOICE QUESTIONS

Choose the most appropriate answer out of the given alternatives:

- i) The number of scales that is needed for making a dimetric projection is  
(a) One                      (b) Two                      (c) Three                      (d) Four
- ii) Isometric drawings fall into a larger category of drawings known as  
(a) Oblique drawings                      (b) Pictorial drawings  
(c) Dimetric drawings                      (d) Perspective drawings
- iii) Isometric drawings fall into the category of  
(a) Oblique drawings                      (b) Axonometric drawings  
(c) Multi-view drawings                      (d) Perspective drawings
- iv) The projectors in isometric view are  
(a) Converging                      (b) Diverging  
(c) Parallel to plane of projection                      (d) Perpendicular to plane projection
- v) Pictorial views drawn on isometric scale are called  
(a) Isometric drawing                      (b) Isometric Projection  
(c) Isometric view                      (d) Any of these
- vi) The exact value of R.F. of an Isometric scale is  
(a)  $9/11$                       (b) 0.815                      (c) 0.8165                      (d)  $\sqrt{2} / \sqrt{3}$

- vii) The angle that isometric lines make with each other is  
 (a)  $45^\circ$  (b)  $60^\circ$  (c)  $90^\circ$  (d)  $120^\circ$
- viii) A square in a regular multi-view projection appears in an isometric view as  
 (a) Box (b) Square (c) Parallelogram (d) Rhombus
- ix) The type of projection in which the surfaces are equally foreshortened is  
 (a) Oblique (b) Cabinet (c) Isometric (d) Orthographic
- x) In comparison to an isometric projection, the appearance of an isometric view is  
 (a) Larger (b) Smaller (c) More accurate (d) More realistic
- xi) On isometric plane, a circle appears as  
 (a) An obloid (b) A circle (c) An ellipse (d) An involute
- xii) While making isometric projections the ellipse is preferably drawn by  
 (a) Four center method (b) Oblong method  
 (c) Concentric circles method (d) Parallelogram method
- xiii) Isometric projections can **not** be drawn by  
 (a) Box method (b) Coordinate method  
 (c) Offset method (d) Zone method
- xiv) A sphere in isometric projection appears as a circle of diameter  
 (a) Equal to the diameter of sphere (b) 0.816 times the diameter of sphere  
 (c) Less than 0.816 diameter of sphere (d) Greater than the diameter of sphere
- xv) The purpose of an isometric scale is  
 (a) To lay off intersecting lines (b) To project the object on projection plane  
 (c) To measure foreshortened lines (d) To measure diagonal lines
- xvi) Select the correct isometric view corresponding to the orthographic views shown in Fig. 15.21

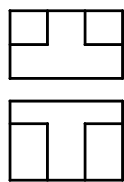
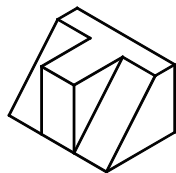
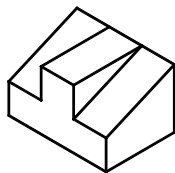


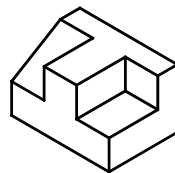
Fig. 15.21



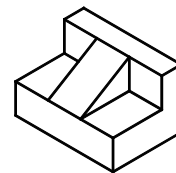
(a)



(b)



(c)



(d)

xvii) Select the correct isometric view corresponding to the orthographic views shown in Fig. 15.22

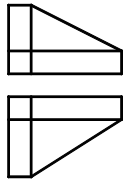
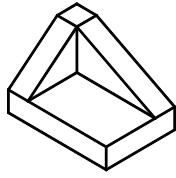
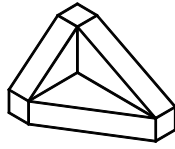


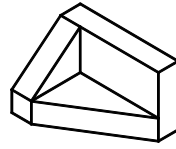
Fig. 15.22



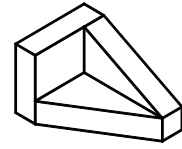
(a)



(b)



(c)



(d)

Answer: (i) b (ii) b (iii) b (iv) d (v) b (vi) d (vii) d (viii) d (ix) c (x) a (xi) c (xii) a  
 (xiii) d (xiv) a (xv) c (xvi) c (xvii) b