SCALES

4

4-1 INTRODUCTION

It is always convenient to represent objects to their actual size in drawings, if their size permits. eg. A 200 mm diameter plain disc should be represented by a circle of 200 mm diameter on the drawing sheet. This gives complete information of the object. When drawings are prepared equal to the actual size of the object, the scale is said to be full size scale and the drawings are said to be full size drawings.

However, it is not always possible to make drawings of all objects, such as large machines, buildings, town plans, etc. to their actual size. When the objects are of very large sizes, the actual dimensions of the object have to be reduced on some regular proportion to make their drawings on the sheet. eg. A rectangular plot of size 25m X 10m can be represented by a rectangle of 250 mm X 100 mm. The scale selected in the present case is 1 mm = 0.10 m. In other words 1 mm on the drawing represents 0.10 m length of the object. When the drawings are prepared smaller than the actual size of the object, the scale is said to be reducing scale and the drawings are said to reduce sized drawings.

Similarly very small objects, such as gear mechanism of a wristwatch, components of an electronics instrument, atoms configuration, etc., are shown by drawing them larger then their actual size. When the drawings are prepared larger than the actual size, the scale is said to be an enlarging scale and the drawings are said to enlarge sized drawings. This is being illustrated by drawing of a bottle.
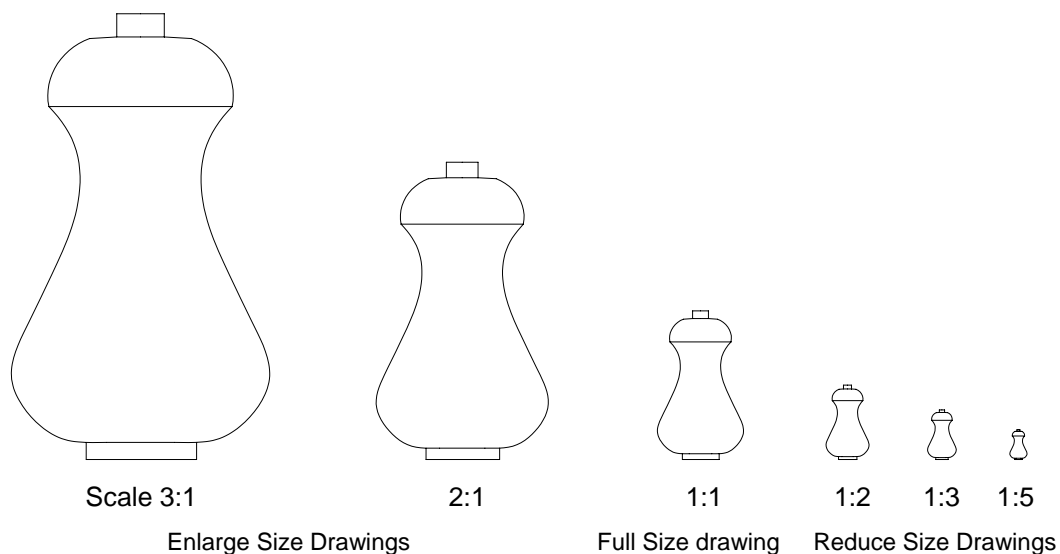

Scale 3:1   2:1   1:1   1:2   1:3   1:5

Enlarge Size Drawings   Full Size drawing   Reduce Size Drawings

Fig. 4.1

MULTIPLE CHOICE QUESTIONS

Choose the most appropriate answer out of the given alternatives:

i) For drawing the components of a wrist watch, the scale used is

(a) Reducing scale (b) Full scale   (c) Enlarging scale   (d) Any of these

ii) The R.F. of scale is always

(a) Less than 1   (b) Equal to 1   (c) Greater than 1   (d) Any of these

iii) The unit of R.F. is

(a) Cubic Centimeter   (b) Square Centimeter
(c) Centimeter   (d) None of these

iv) The full form of R.F. is

(a) Reducing fraction   (b) Representative fraction
(c) Reduction factor   (d) Representative factor

v) A map of 10 cm X 8 cm represents an area of 50000 sq. metre of a field. The R.F. of the scale is

(a) 1/25   (b) 1/625   (c) 1/2500   (d) 1/6250000

vi) An area of 36 square kilometer is represented by 144 square centimeter on a map. What is the R.F.?

(a) 1/4   (b) 1/2   (c) 1/5000   (d) 1/50000

vii) When measurements are required in three consecutive units, the appropriate scale is

(a) Plain scale   (b) Diagonal scale (c) Isometric scale   (d) Scales of chords

viii) In the diagonal scale, the word "diagonal" is used because it is most suitable for the measurement of

(a) Diameter of a circle   (b) Diagonal of a square
(c) Side of a pentagon   (d) All of these

ix) Scale used for two system of units measurement is

(a) Plain scale   (b) Diagonal scale (c) Comparative scale (d) Vernier scale

x) Diagonal of a square can be measured by a

(a) Plain scale   (b) Diagonal scale (c) Vernier scale   (d) All of these

xi)   Scale of chord is used to measure

(a) Length of chord   (b) Arc length of chord
(c) Angle of chord   (d) All of these

xii)   .F. of the scale on a mini-draughter is

(a) 0   (b) 1   (c) 10   (d) None of these

xiii)   Which of the following scale is used for converting miles into kilometers

(a) Diagonal scale   (b) Comparative scale
(c) Direct Vernier scale   (d) Retrograde Vernier scale

ANSWER: (i) c (ii) d (iii) d (iv) b (v) c (vi) d (vii) b (viii) d (ix) c (x) d (xi) c(xii) b (xiii) b