ENGINEERING DRAWING

Full Marks – 100

Time – Four hours

The figures in the margin indicate full marks
for the questions.

SECTION – A

1. Fill in the blanks with appropriate words :

$1 \times 10 = 10$

(i) Circles and arcs of circles are drawn by means
of a _____.

(ii) Angles in multiples of $15°$ are constructed by
combined use of _____ and _____.

(iii) For drawing large size circles _____ is
attached to the compass.

(iv) The edge of the board on which T-square is
made to slide is called its _____.

(v) T-square is used for drawing _____ lines.

(vi) The ratio of the length of the drawing of the object to the actual length of the object is called _____.

(vii) When the measurements are required in three units _____ scale is used.

(viii) Drawing of buildings are drawn using _____ scale.

(ix) When projectors are parallel to each other and also perpendicular to the plane, the projection is called _____.

(x) Isometric scale is used in _____ projection.

2. Write the description and general application of the following lines : 2×5=10

(a) Centre line

(b) Hatching line

(c) Projection line

(d) Hidden line

(e) Cutting plane line

3. Choose the correct answer : $1 \times 5 = 5$

(i) The outer most part of a thread is called Crest / Root.

(ii) The screw is specified by the major / minor / nominal diameter.

(iii) The lead is equal to pitch in case of single start / double start thread.

(iv) In a lap / butt joint the plates to be connected overlap each other.

(v) Scales having same representative fraction but graduated to read different units are called diagonal / comparative scale.

SECTION – B

Answer any *five* questions.

1. (i) What are the two systems of placing dimensions on a drawing ? 5

(ii) Draw a scale of 1 : 60 to show metres and decimetres and long enough to measure upto 6 metres. 5

(iii) Construct a diagonal scale of R.F = 1/4000 to show metres, and long enough to measure upto 500 metres. 5

2. (i) An area of 144 sq. cm on a map represents an area of 36 sq. km on the field. Find the R.F of the scale for this map and draw the diagonal scale to show kilometres, hectometres and decametres to measure upto 10 kilometres. 4+5=9

(ii) Draw a line PQ 100 mm long. At any point O in it near its centre, erect a perpendicular OA 65 mm long. Through A, draw a line parallel to PQ. 6

3. (i) Construct a rectangle of sides 65 mm and 40 mm long.

(ii) Construct a regular pentagon of 30 mm side.

(iii) Construct a regular hexagon in a circle of 100 mm diameter. 4+5+6=15

4. Draw the projections of the following points on the same ground line, keeping the projectors 25 mm apart : 2.5×6=15

(a) In the H.P and 20 mm behind the V.P.

(b) 40 mm above the H.P and 25 mm in front of the V.P.

(c) In the V.P and 40 mm above the H.P.

(d) 25 mm below the H.P and 25 mm behind the V.P.

(e) 15 mm above the H.P and 15 mm behind the V.P.

(f) 40 mm below H.P and 25 mm in front of V.P.

5. (i) A point P is 15 mm above the H.P and 20 mm in front of the V.P Another point Q is 25 mm behind the V.P and 40 mm below the H.P. Draw projections of P and Q keeping the distance between their projectors equal to 90 mm. Draw straight lines joining (i) their top views and (ii) their front views.   7

(ii) A 100 mm long line is parallel to and 40 mm above the H.P. Its two ends are 25 mm and 50 mm in front of the V.P respectively. Draw its projection and find its inclination with the V.P.   8

6. (i) Draw the isometric view of the frustum of the cone as shown in the figure.   7
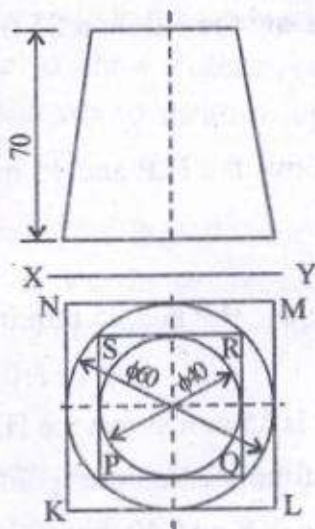
(ii) Draw the following views of the block shown pictorially in figure.

Use third angle projection method (i) Front view (ii) Top view (iii) Both side views.   8
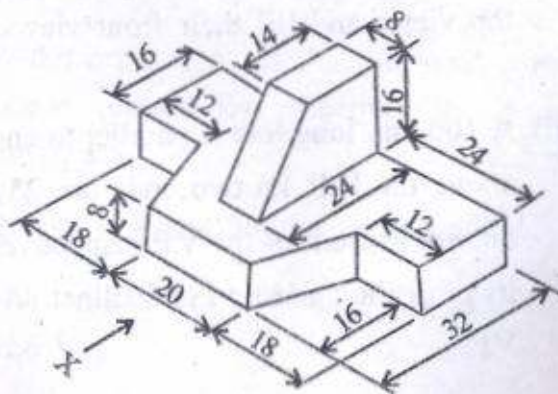
7. (i) Draw three views of a hexagonal nut for a 24 mm diameter bolt, according to approximately standard dimensions. 9

(ii) Write the following in vertical style. Height of the letters should be 15m. Attention may be given to thickness, shape of letters, spacing and general arrangement.

"BELIEVE IN YOURSELF" 6