TECHNICAL DRAWING APPLICATIONS

(***Three hours)***

*Answers to this paper must be written **neatly** on the paper provided separately.*

*You will **not** be allowed to draw/write during the first 15 minutes.*

This time is to be spent in reading the question paper.

The time given at the head of the paper is the time allowed for writing the answers.

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*Attempt **five** questions in all.*

*You must attempt **three** questions from **Section A** and **two** questions from **Section B***

Each section should be answered on a separate paper.

All questions must be answered in full scale.

All construction lines must be shown.

All dimensions are in millimeters unless specified otherwise.

The intended marks for question or parts of questions are given in brackets [ ].

SECTION A (48 Marks)

*Answer any **three** questions from this section.*

Question 1.

(a) Construct an ELLIPSE by the CONCENTRIC CIRCLES METHOD. [10]

Given: Major Axis = 145mm

Minor Axis = 90mm.

(b) Draw a regular hexagon of side 60mm. Draw three equal circles inside the hexagon so that each circle touches two sides of the hexagon and two other circles externally. [6]

Question 2.

Draw the Front View and the Top View of a right hexagonal Pyramid whose axis is inclined at 30° to the horizontal plane (H.P.) and is parallel to the vertical plane (V.P.). One side of the base is inclined at 45° to the V.P. Its apex is nearer to the H.P. than its base. [16]

Given: Side of the base = 30mm

Length of Axis =75mm.

Use the **THIRD ANGLE METHOD** of projection.

Question 3.

Refer to **Figure 1** given below. Copy the given template. [16]

(Insert any 4 dimensions.)

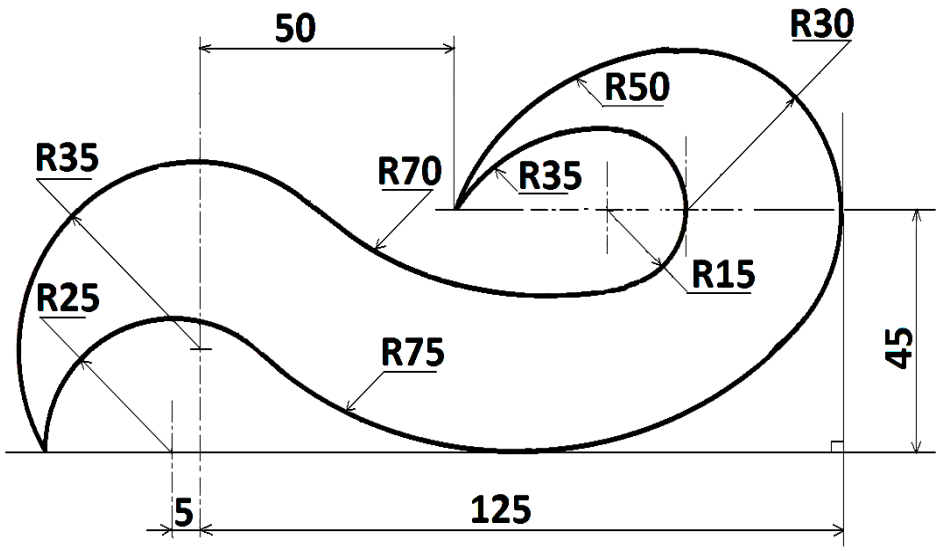

Figure 1

Question 4.

Construct a **PLAIN SCALE** long enough to measure the length = 4.3m. [16]

Given: R. F. = 1:50. Show the data and working neatly.

Taking the measurements from the scale constructed, draw a neat scale diagram of a regular pentagon ABCDE of side 2.6m.

In the same figure, construct geometrically a square PQRS so that

Area [Square PQRS] = Area [Pentagon ABCDE].

Question 5.

Refer to **Figure 2** given below. It shows the Front View (F.V.) and the Left Hand Side View (L.H.S.V.) of an object in the **FIRST ANGLE METHOD** of projection. Draw the **OBLIQUE VIEW** when the receding axis is inclined at 45^{o} to the horizontal. [16]

Use scale 2:1.

(Do not insert any dimensions.)

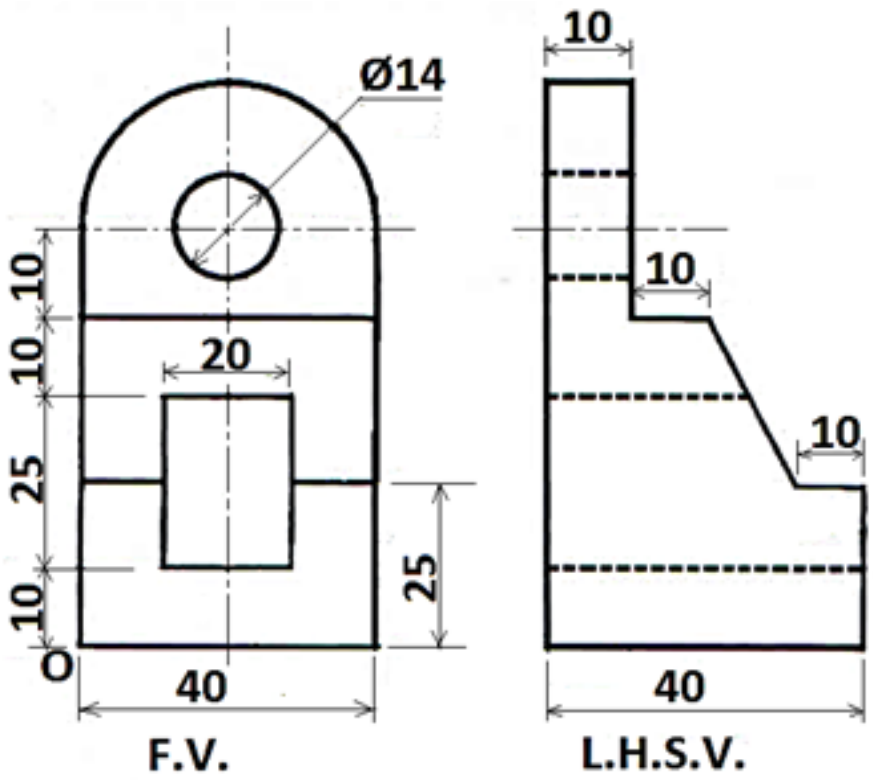

Figure 2

SECTION B (52 Marks)

*Answer any **two** questions from this Section.*

Question 6.

(a) Refer to **Figure 3** given below. It shows the front view (F.V.) and the right hand side view (R.H.S.V.) of a right square prism in the **FIRST ANGLE METHOD** of projection. Its axis is parallel to the horizontal plane (H.P.) and parallel to the vertical plane (V.P.). One side of its base is inclined at 30° to the H.P. [12]

The prism is cut by a cutting plane inclined at 45° to the H.P. and perpendicular to the V.P. The vertical trace (V.T.) of the cutting plane is shown in the figure.

Draw the :

(i) Front View

(ii) Sectional Top View.

(iii) Sectional Right Hand Side View.

Given : Side of the base = 35mm

Length of axis =70mm.

Use the **FIRST ANGLE METHOD** of projection.

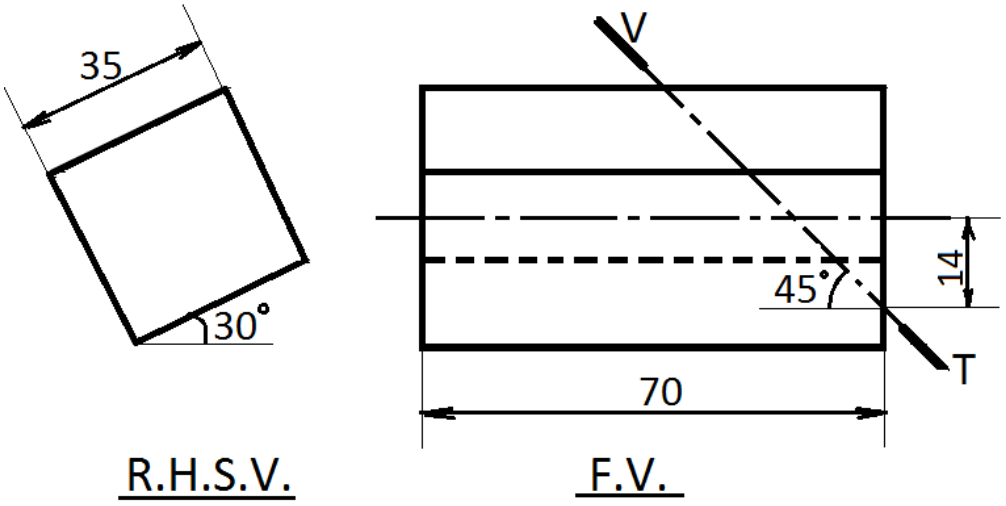

Figure 3

(b) Refer to **Figure 4** given below which shows the front view (F.V.) and the top view (T.V.) of a right pentagonal pyramid in the **FIRST ANGLE METHOD** of projection. Its axis is perpendicular to the horizontal plane (H.P.) and parallel to the vertical plane (V.P.). One side of its base is parallel to the V.P. The pyramid is cut by a cutting plane inclined at 45° to the H.P. and perpendicular to the V.P. The vertical trace (V.T.) of the cutting plane is shown in the figure. Draw the: [14]

(i) Front View

(ii) Sectional Top View

(iii) True Shape of Section.

Given: Side of the base = 35mm

Length of axis = 65mm

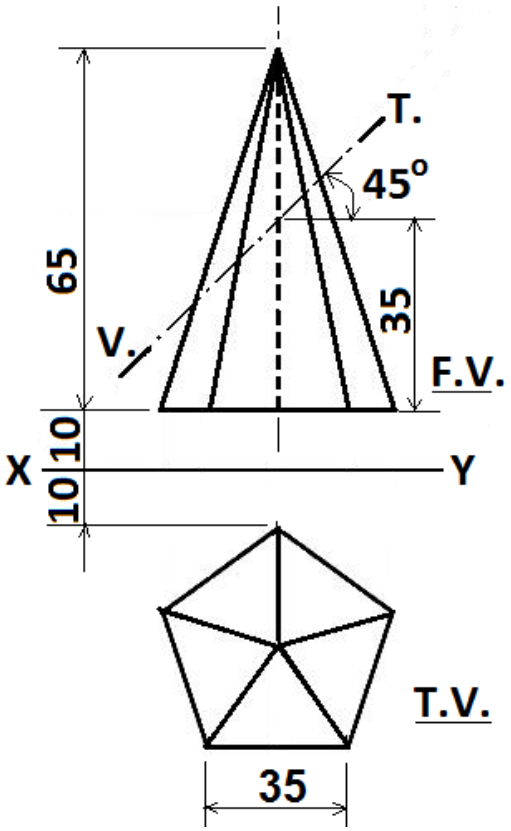

Figure 4

Question 7.

[26]

Refer to **Figure 5** given below.

Copy the given **Isometric View.**

(Do not insert any dimensions.)

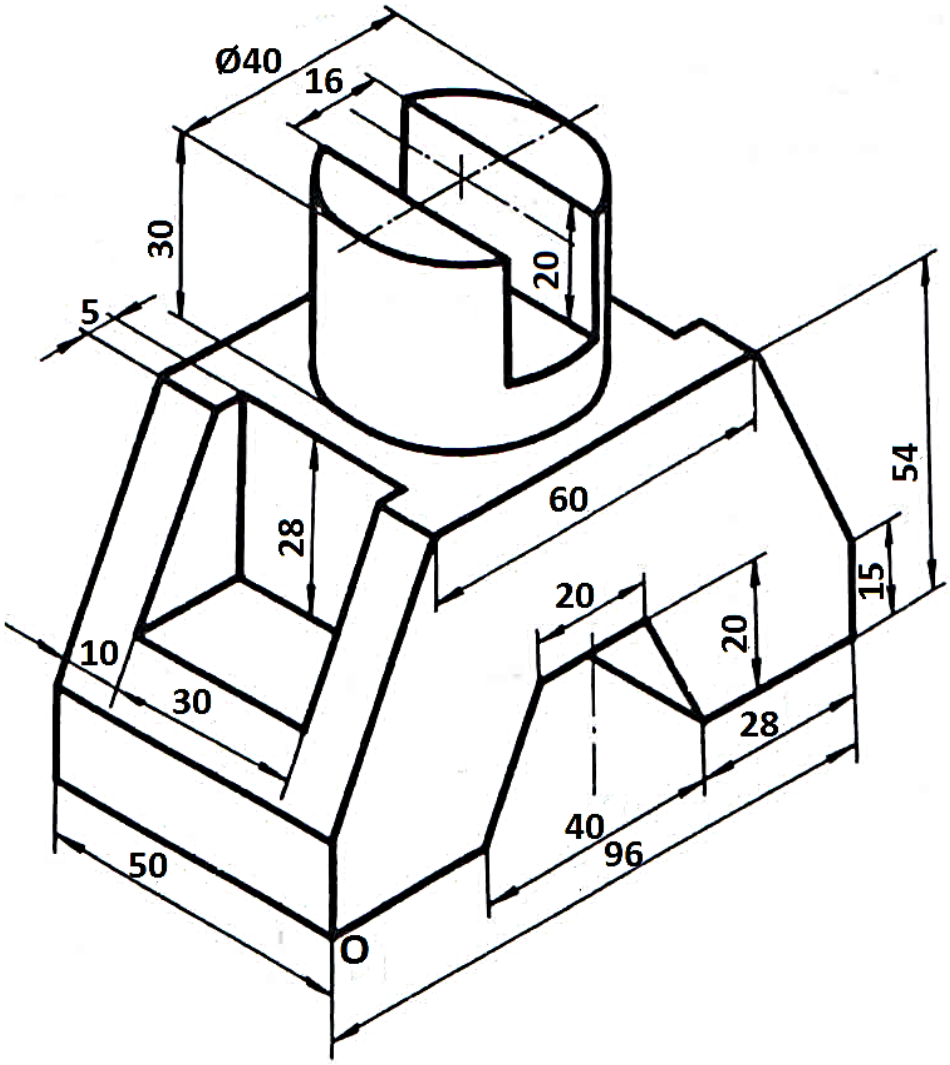

Figure 5

Question 8.

Refer to **Figure 6** given below. [26]

Using the **THIRD ANGLE METHOD** of projection, draw the:

(i) Full Sectional Elevation [Section along A – A]

(ii) Plan

(iii) Left hand side view.

(Insert any 4 dimensions.)

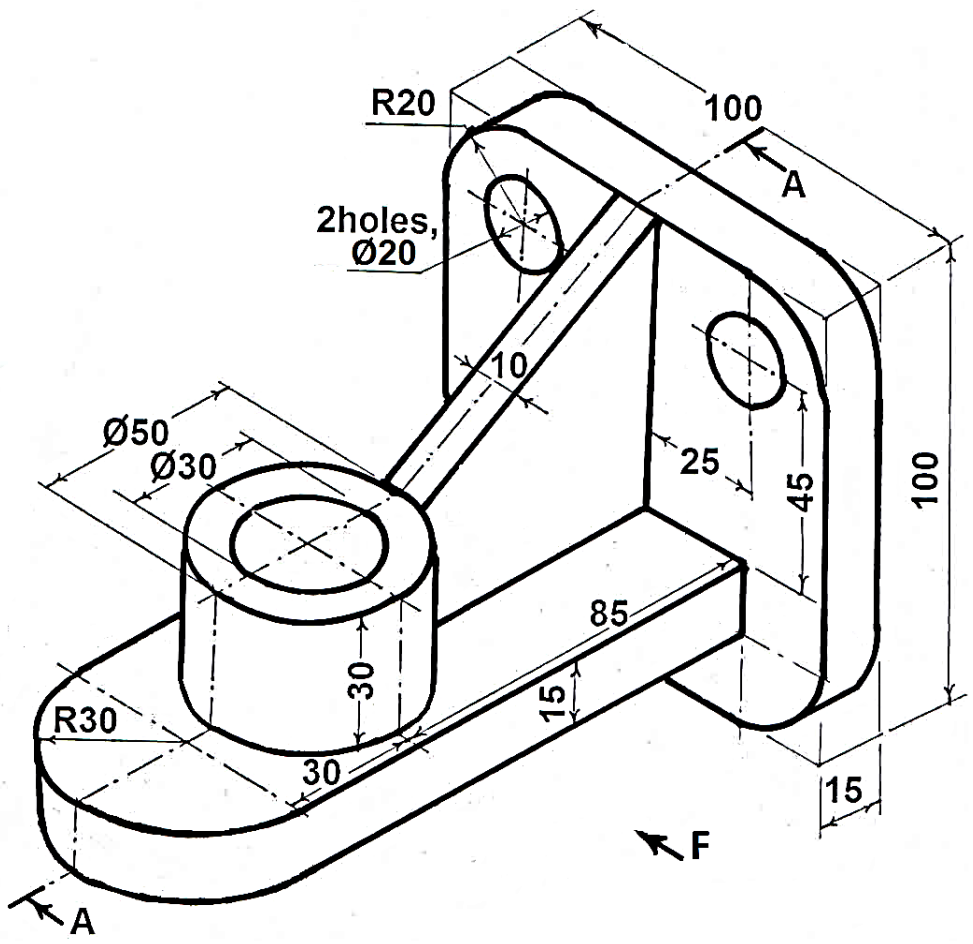

Figure 6