TECHNICAL DRAWING APPLICATIONS

Maximum Marks: 100

Time allowed: Three hours

1. Answers to this Paper must be written on the paper provided separately.

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

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

4. **The time given at the head of this Paper is the time allowed for writing the answers.**

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

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

7. Each section should be answered on a separate paper.

8. All questions must be answered in full scale.

9. All construction lines must be shown.

10. All dimensions are in millimetres unless specified otherwise.

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

Instruction for the Supervising Examiner

Kindly read aloud the Instructions given above to all the candidates present in the
Examination Hall.

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

Question 1

In a working drawing, a line measuring 20 cm was marked as 5 m. Calculate the R.F.   [16]
(Representative Fraction).

Construct a **DIAGONAL SCALE** which has the same R.F. and is long enough to measure up to 7 m. Show the data and working neatly.

Taking measurements from the scale constructed, draw a parallelogram ABCD given side AB = 2.25 m, side AD = 0.87 m and $\angle$DAB = 60°. Then construct a triangle of area equal to the area of the parallelogram.

Question 2

(i)   Construct a triangle ABC of Perimeter 155 mm and with ratio of the sides   [6]
AB : BC : CA = 3 : 5 : 4. Show all construction lines.

(ii)   **Figure 1** given below shows the Front View (F.V.) and the Top View (T.V.) of   [10]
a cone with axis perpendicular to the vertical plane and parallel to the horizontal plane in the **FIRST ANGLE METHOD** of projection.

Draw the Auxiliary Front View of the Cone. The auxiliary plane X_1Y_1 is shown in the figure.

Given: Radius of the base = 25 mm
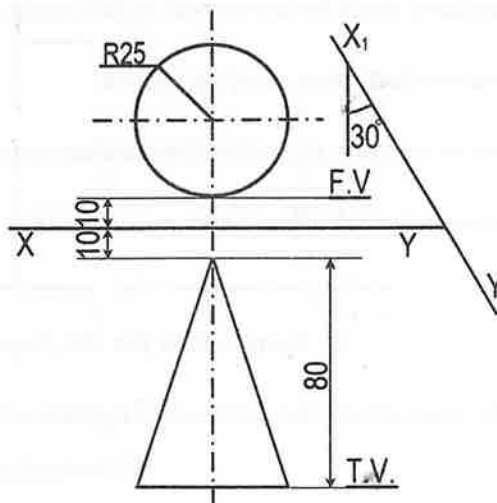
Length of Axis = 80 mm

-Figure 1

Question 3

Refer to **Figure 2** given below. It shows the Front View (F.V.) and the Top View (T.V.) [16] of an object in the **FIRST ANGLE METHOD** of projection. Draw the **OBLIQUE VIEW** when the receding axis is inclined at 45° to the horizontal.
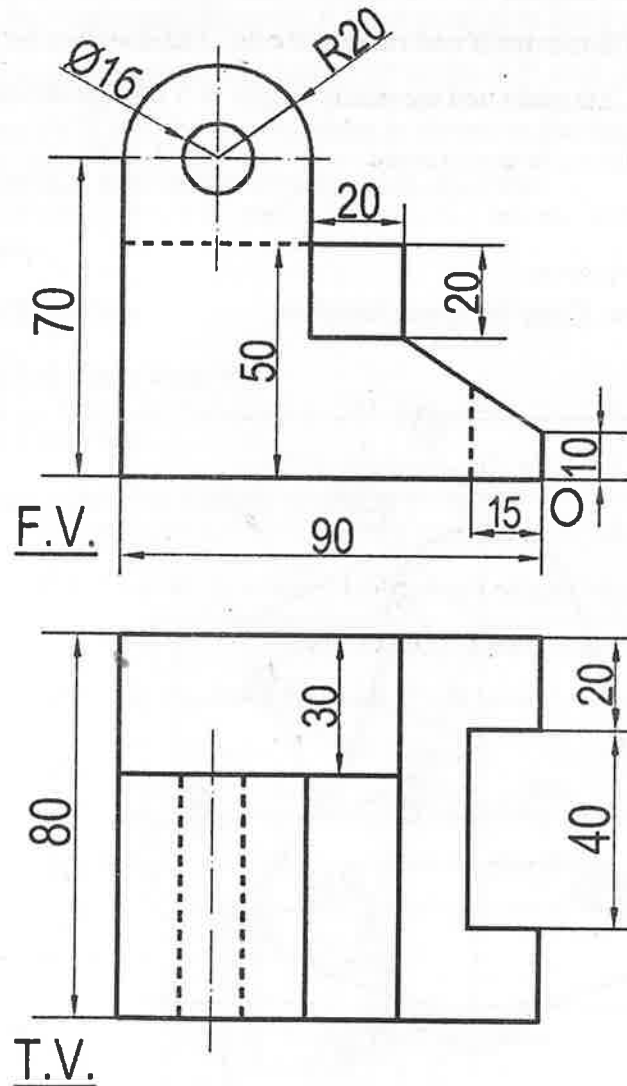
(Do not insert any dimensions.)

Figure 2

Question 4

(i)   Inscribe three equal circles in a given equilateral triangle of side 100 mm, in such   [8]
a way that each circle will touch two sides of the triangle and two other circles
externally.

(ii)   Draw a direct common tangent to two circles, one with centre A and radius   [8]
40 mm and the other with centre B and radius 25 mm. The distance between the
two centres is 125 mm. Measure and record its length in 5 mm guidelines.

Question 5

Refer to **Figure 3** given below. Copy the given template.   [16]
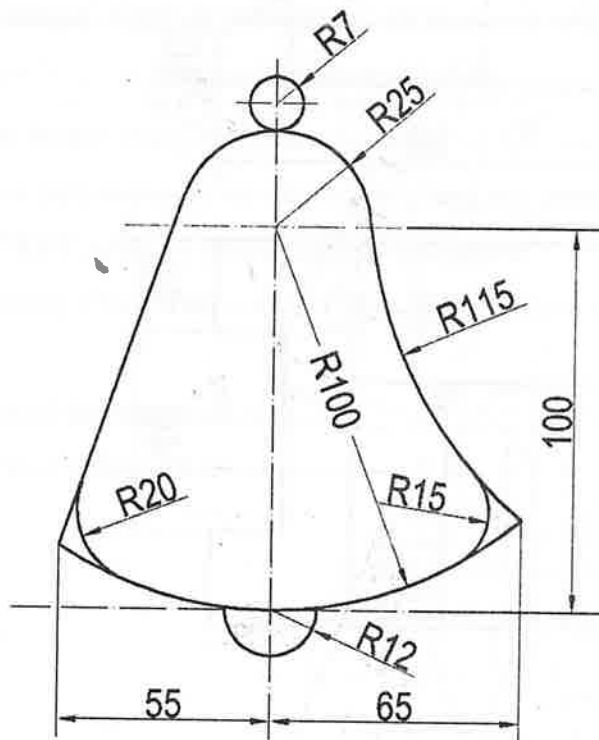**(Insert all dimensions.)**

Figure 3

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

Question 6

Refer to **Figure 4** given below. It shows the Front View (F.V.) and the Top View (T.V.)   [26]
of a right square pyramid in the **THIRD ANGLE METHOD** of projection. Its axis is
perpendicular to the Horizontal Plane (H.P.) and parallel to the Vertical Plane (V.P.). The
pyramid is cut by a cutting plane inclined at 30° to the H.P. and perpendicular to the V.P.
The Vertical Trace (V.T.) of the cutting plane is shown in the figure.

Using **FIRST ANGLE METHOD** of projection draw the:

(i)   Front View

(ii)   Sectional Top View

(iii)   Sectional Left Hand Side View

(iv)   Auxiliary Top View

Given: Side of base = 40 mm, Length of axis = 75 mm
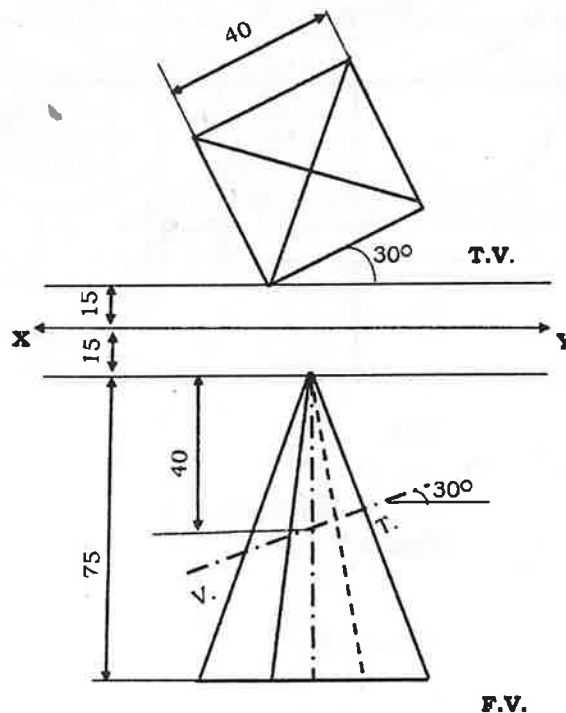

Figure 4

Question 7

Refer to **Figure 5** given below. It shows Front View (F.V.) and Top View (T.V.) of a [26] machine block in **FIRST ANGLE METHOD** of Projection. Draw the **ISOMETRIC VIEW**.

(Do not insert any dimensions.)

R40

15

O

HEX. A/F 45

F.V.

60

40

R15

50

10

T.V.

Figure 5

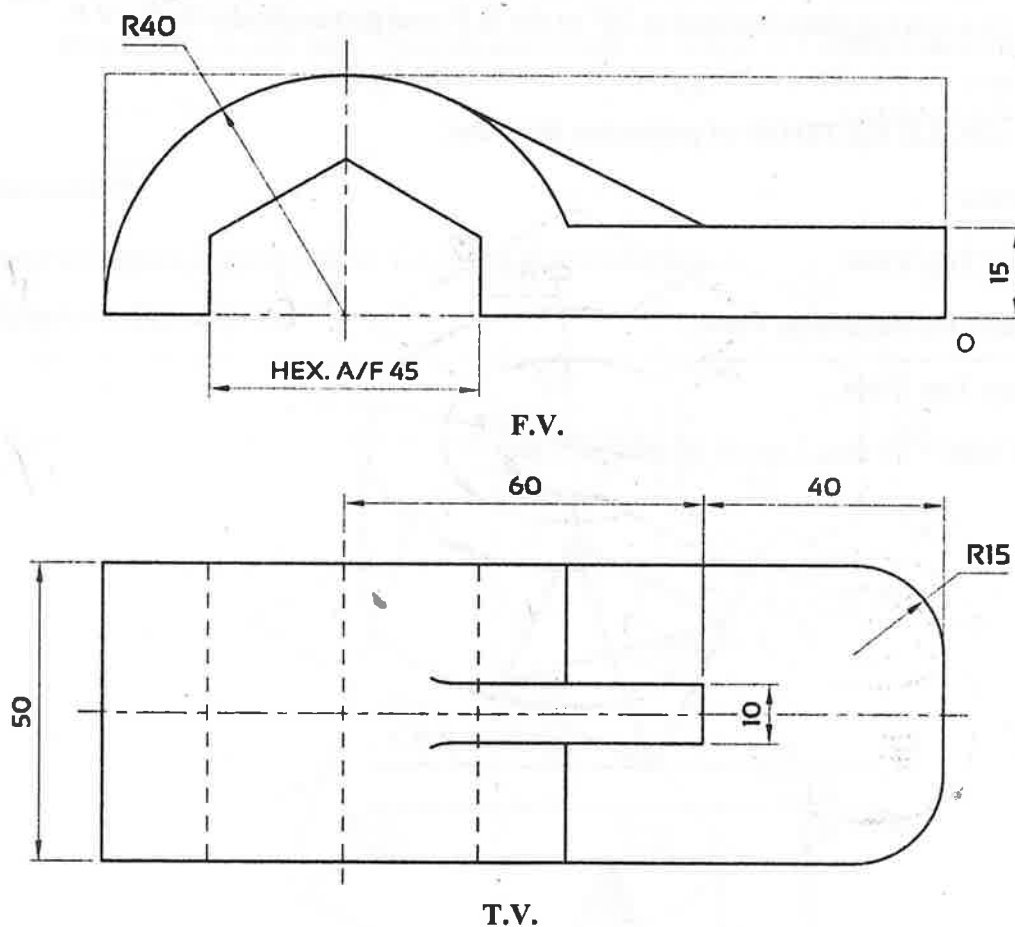## Question 8

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

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

(i)   Sectional Front View [Section along A–A]

(ii)   Top View

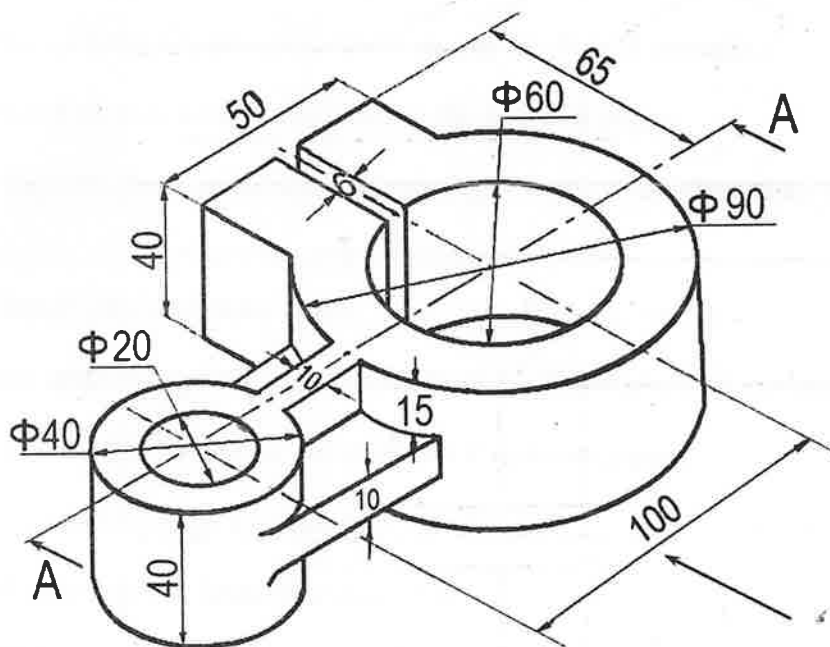(iii)   Left Hand Side View

(Insert any six dimensions.)

Figure 6