

Qualification Code : Technical Drawing I

Qualification :

**AUTOMOTIVE/ELECTRICAL/MECHATRONICS/CIVIL,MECHANICAL
PLANT/MECHANICAL TECH./MECH. TECH**

Unit Code :ENG/CU/MPE/CC/01/6/A

Unit of Competency : Prepare and interpret technical drawings

MARCH/APRIL 2024

INSTRUCTIONS TO STUDENT:

1. The paper consists of **TWO** sections: **A** and **B**.
2. Answer **ALL** questions in section **A** and any 3 in section **B**.
3. Answer **ALL** questions in sections A and B in the answer booklet provided.
4. Marks for each section are indicated in the brackets .
5. Do not write on this question paper.
6. Answer the questions in English.

This paper consists of six(6) printed pages.

Candidate should check the question paper to ascertain that all pages are printed as indicated and that no questions are missing.

SECTION A (40 MARKS)

Answer **all** questions from this section

1. Illustrate using drawings four different types of lines in technical drawing and their respective functions. (4 marks)

2. List and describe 5 basic tools an engineer needs during drawing (5 marks)

3. Using a rectangle of 60mm by 40mm illustrate the difference between aligned and unidirectional system of dimensioning. (4 marks)

4. Draw and bisect a 60° angle using a compass and ruler only (4 marks)

5. Outline the steps in drawing a hexagon given its side length (6 marks)

6. What does the term projection refer to in technical drawing? (2 marks)

7. State the meaning of an orthographic projection and its purpose in technical drawing?
(3 marks)

8. Identify using standard symbols the differences between first angle and third angle of projection (4 marks)

9. Define the following terms as used in technical drawing; (4 marks)
 - (a) An arc
 - (b) a quadrant
 - (c) a sector
 - (d) a segment

10. What is meant by an isometric drawing?

(2 marks)

12. What is the purpose and application of auxiliary views in technical drawing?

(2marks)

SECTION B (60 marks)

Answer **any** three questions from this section

13. On A3 size drawing paper, using drawing instruments draw in first angle projection the views of the block given in figure below as follows: (20 marks)

a) Front elevation in the direction of arrow X;

b) End elevation.

c) Plan.

The arrow indicates the front view

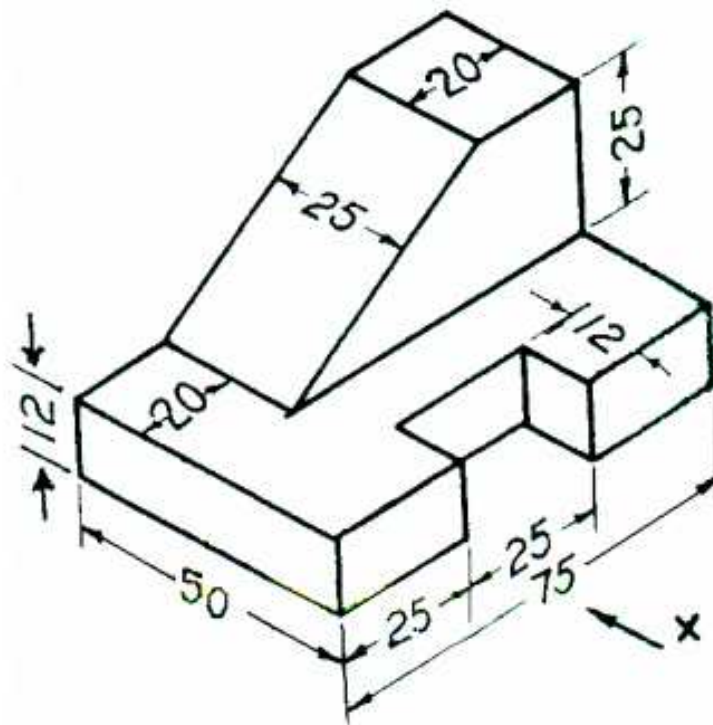
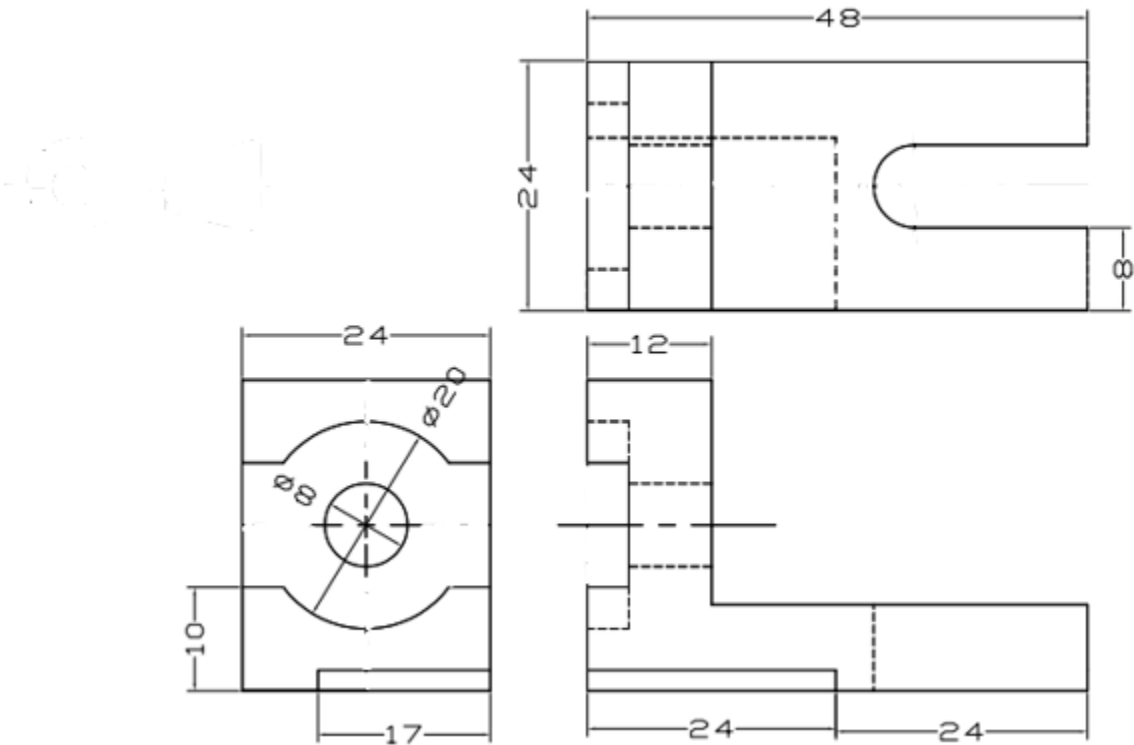


Fig: 1

14. (a) Construct an ellipse with a minor diameter of 60mm and a major diameter of 100mm (10 marks)

(b) Inscribe a regular octagon in a square with sides 80mm (10 marks)

15. The figure below shows the three views of a shaped block in third angle orthographic projection. On A3 size drawing paper and using drawing instruments draw the pictorial view of the block. (20 marks)



16. A regular hexagonal base side length 30mm and height 60mm rests on its base such that two of its sides are perpendicular to the vertical plane. It is truncated by a 30° cutting plane on its vertical axis at the 40mm mark. Draw the given front, the plan, the end elevation, the true shape, and the development of the lateral surface. (20 marks)