

0715 0654C

MECHANICAL PRODUCTION TECHNICIAN LEVEL 6

ENG/OS/MEM/CC/1/6

Prepare and Interpret Technical Drawing

March/April 2026



**TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION COUNCIL
(TVET CDACC)**

WRITTEN ASSESSMENT

Time: 3 HOURS

INSTRUCTIONS TO CANDIDATE

1. The paper consists of **TWO** sections: **A** and **B**.
2. You are provided with computer installed with Computer Aided drawing software, A4 Printing papers and size A3 drawing papers.
3. Attempt **ALL** questions in Section A. Answer **Question 12** and **ANY TWO** questions in Section B.
4. Produce print out for the CAD. No candidate should burn their work in CDs
5. Marks for each question are indicated in the brackets.
6. **DO NOT** write on this question paper.

This paper consists of SIX (6) printed pages

Candidates 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 the questions in this section.

1. During the design and development of a machine bracket, an engineer will rely on a technical drawing in the process. State FOUR uses of this drawing to the engineers.
(4 Marks)
2. Draw a circle of radius 32mm and illustrate the following parts; (4 Marks)
 - i. Chord
 - ii. Segment
 - iii. Sector.
3. While working in a workshop or design environment, you use AutoCAD to prepare technical drawings. List THREE advantages you would gain from using CAD compared to manual drawing. (3 Marks)
4. Define the functions of the following line types that you would use when drafting an angle bracket. (2 Marks)
 - a. Guide lines
 - b. Center line
5. Using a ruler and a pair of compasses, construct the following angles.
 - a. 75° . (2 Marks)
 - b. 135° . (2 Marks)
6. While working in AutoCAD, viewing commands are used to control how drawings are displayed and navigated. Define the function of each viewing command listed below (3 Marks)
 - a. Array
 - b. Pan
 - c. Extrude
7. When preparing technical drawings, you are expected to use orthographic projection symbols to show the type of projection. Draw each of the following projection symbols as they would appear in your drawing.
 - a. First angle projection. (2 Marks)
 - b. Third angle projection. (2 Marks)

8. Using a ruler and a pair of compasses only, construct a triangle of perimeter 158mm with a ratio of 2:3:4. (5 Marks)
9. You are tasked to construct a regular pentagon given the length of one side to be 41mm. Show your working in the drawing paper provided. (4 Marks)
10. Using free hand sketch illustrate how the Figure 1 below will be hatched. (4 Marks)

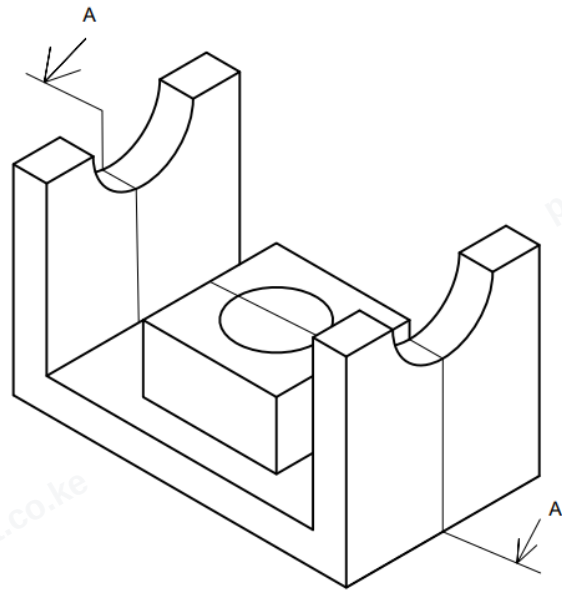


Figure 1

11. Using a compass and a pencil only, circumscribe a circle given the following triangle property; $AB = 30 \text{ mm}$, $AC = 40 \text{ mm}$, $BC = 50 \text{ mm}$. (3 Marks)

SECTION B (60 MARKS)

Attempt Question 12 and any other TWO Questions in this section.

12. A fabrication industry intends to make the machine block component shown in Figure 2 below. Using a CAD program 3D model, draw the block and use viewports to extract the following views in conceptual visual style and print your finished work on an A4 paper.

(20 Marks)

- Front view in the direction of arrow B,
- End view,
- Plan.

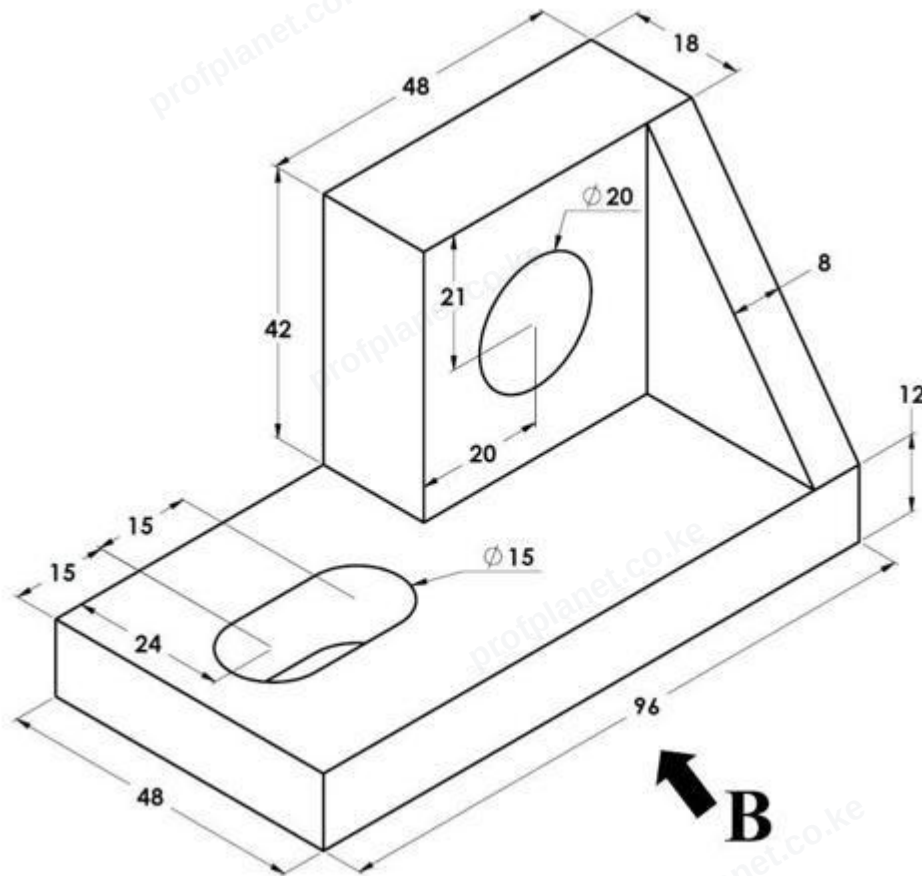


Figure 2

13. Figure 3 below shows a machine block. Draw the following views in first angle projection in the drawing paper provided. Include at least 4 major dimensions

(20 Marks)

- i. Front elevation in the direction of arrow P
- ii. End elevation in the direction of the arrow B
- iii. Plan

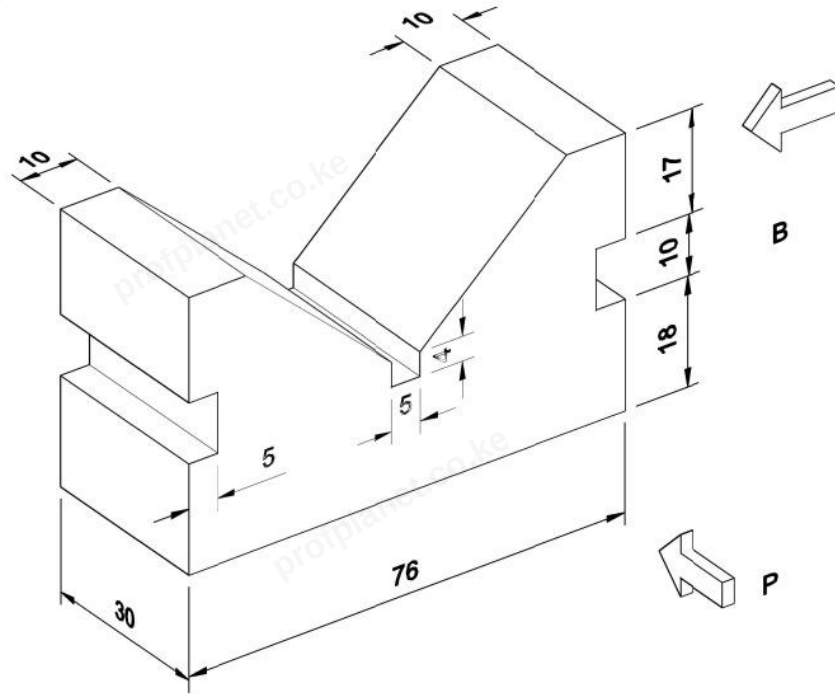


Figure 3

14. A cone has a $\text{Ø}60$ mm at the base and a height is 70 mm. It is truncated by a plane at 30° to the base plane with this plane meeting the axis of the cone at 35 mm below the apex. Draw the surface development of this truncated cone. (20 Marks)

15.

- a. A real-estate company wants to contract you to design for them rain water drainage pipes where two circular pipes are to intersect at an angle as shown in Figure 4 below. Construct the intersection of the two cylinders: (10 Marks)

- i. Complete the front elevation.
- ii. Complete the plan.

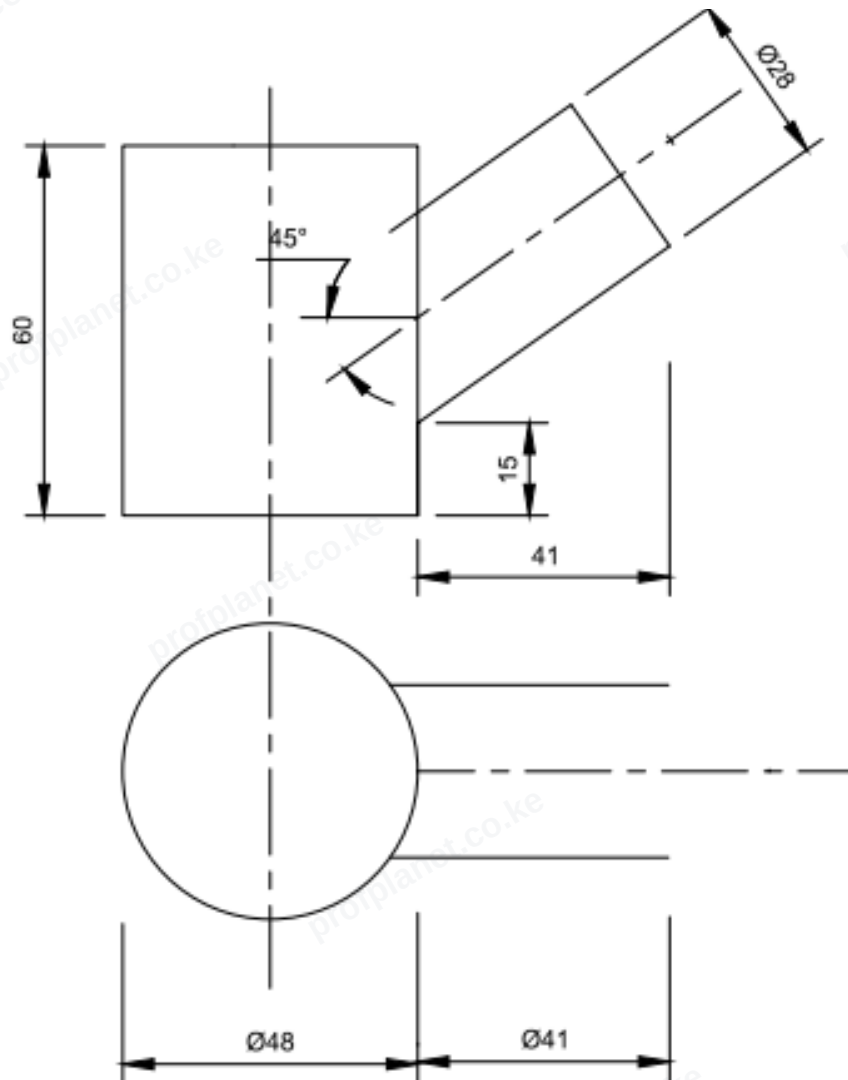


Figure 4

- b. Construct an ellipse using concentric circle method with a major diameter of 98mm and a minor diameter of 52mm (10 Marks)