0715 0654C

MECHANICAL PRODUCTION TECHNICIAN LEVEL 6

ENG/OS/MEM/CC/1/6

PREPARE AND INTERPRET TECHNICAL DRAWING

November/ December 2025

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 with computer installed with Computer Aided drawing software, CD ROM and A3 size drawing paper.

3. Attempt ALL questions in section A. Question 11 is compulsory and ANY TWO questions in Section B.

4. Marks for each question are indicated in the brackets.
5. Candidates are provided with a separate answer booklet

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. A triangle is a plane figure used in real-life applications like building structures and design work. List FOUR types of triangles. (4 Marks)
2. Angles are very important dimensions in the design process. Using a pair of compasses and a ruler only, construct the following angles:
   a. 135° (2 Marks)
   b. 30° (2 Marks)
3. Trainees are advised to strictly follow safety rules in the drawing workshops to avoid injuries and damage of drawing equipment. List FOUR of these rules. (4 Marks)
4. Illustrate the following parts of a circle; (4 Marks)
   a. Chord
   b. Segment
   c. Sector.
5. A mechanic intends to divide a 110 millimeters line into 9 equal parts. Show how this division is done. (4 Marks)
6. Caring and maintenance practices of drawing tools and equipment is essential for prolonging their time of usage. Highlight FOUR such practices. (4 Marks)
7. In a fabrication workshop, you are required to prepare a machine cover plate in the shape of a regular pentagon, where each side measures 44 mm. Using the drawing paper provided, construct the pentagon and show all your working (4 Marks)
8. In preparation for a technical drawing assessment, a trainee is required to be adequately equipped. State FOUR essential drawing tools the trainee must have to undertake the assessment. (4 Marks)
9. Using standard drawing symbols, identify the difference between first angle and third angle projections. (4 Marks)
10. Point A lies on the circumference of a wheel with a diameter of 80 mm. The wheel rolls along a straight-line AB without slipping and completes one full revolution. Construct the locus (4 Marks)

SECTION B (60 MARKS)

Attempt THREE Questions in this Section. Question 11 is COMPULSORY.

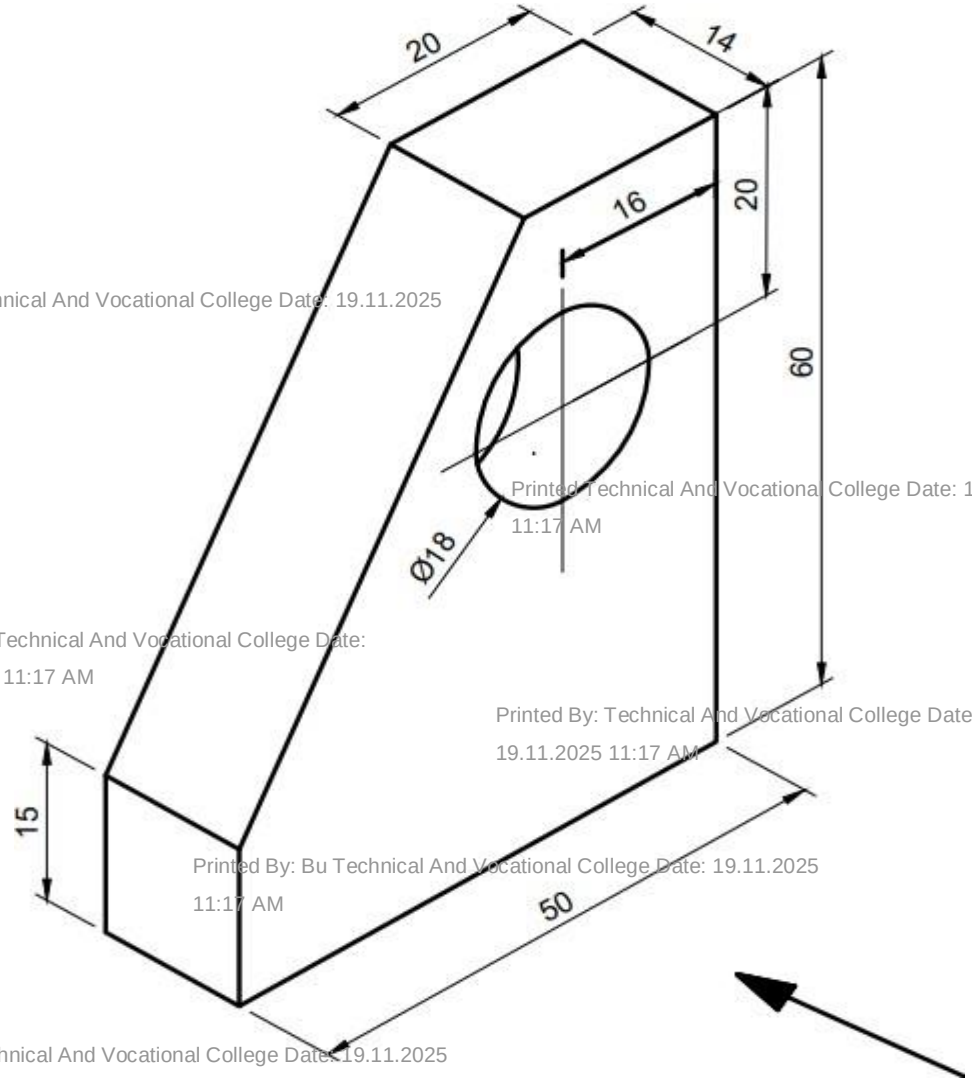
11. A professional engineering designer intends to design and develop the machine part shown in Figure 1 below using Computer Aided Drawing (CAD) program. Design the following views in CAD as he would and print your finished work on an A4 paper. (20 Marks)

a) Front in the direction of the arrow

b) End elevation

c) Plan view.

d) Include 5 major dimensions



12. As a mechanical technology trainee, you are demonstrating construction of isometric drawings to your class. Using Figure 2, which shows views in third angle orthographic projection, construct an isoprojection of the object with corner X as the lowest point. Clearly indicate THREE major dimensions on your drawing. (20 Marks)

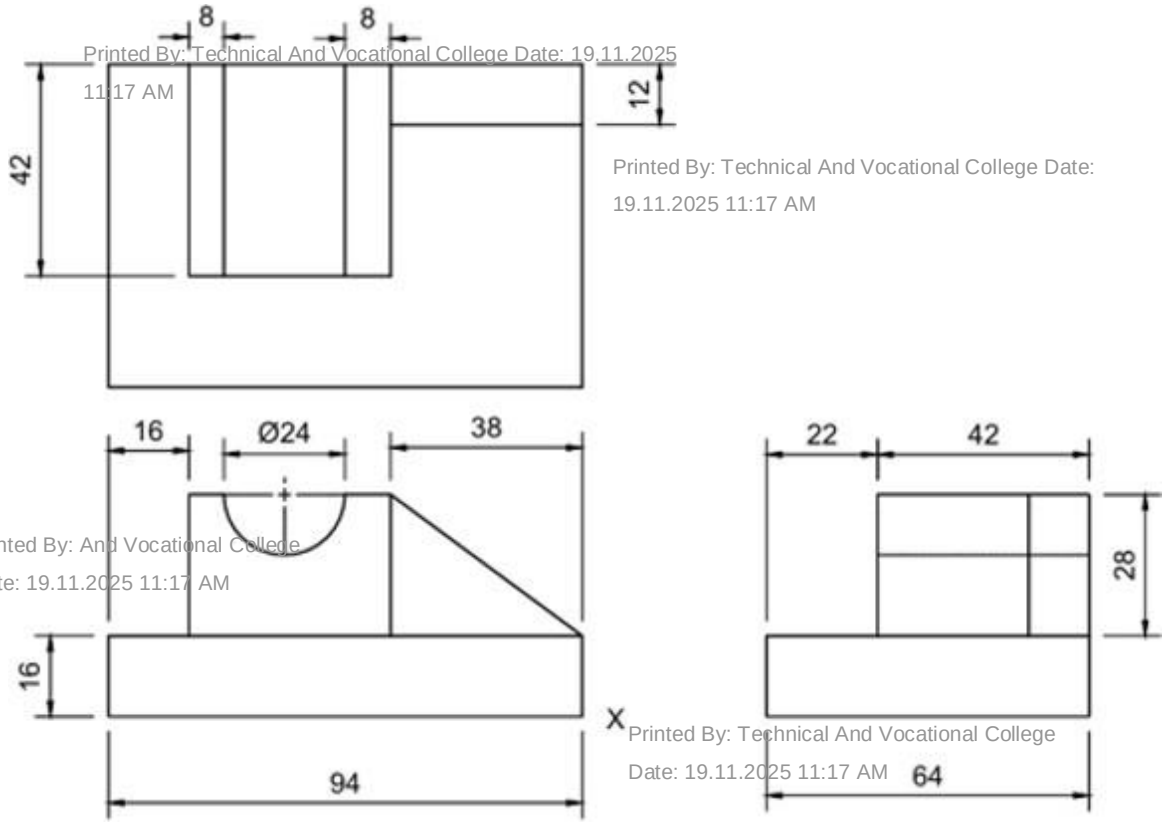


FIGURE 2

13.

a. As an engineering intern at a Metalworks Solutions industry, you are tasked to design a machine component shaped as a truncated square pyramid. Using the view provided in Fi:

i. The plan view. (5 Marks)

ii. The surface development of the truncated pyramid. (5 Marks)

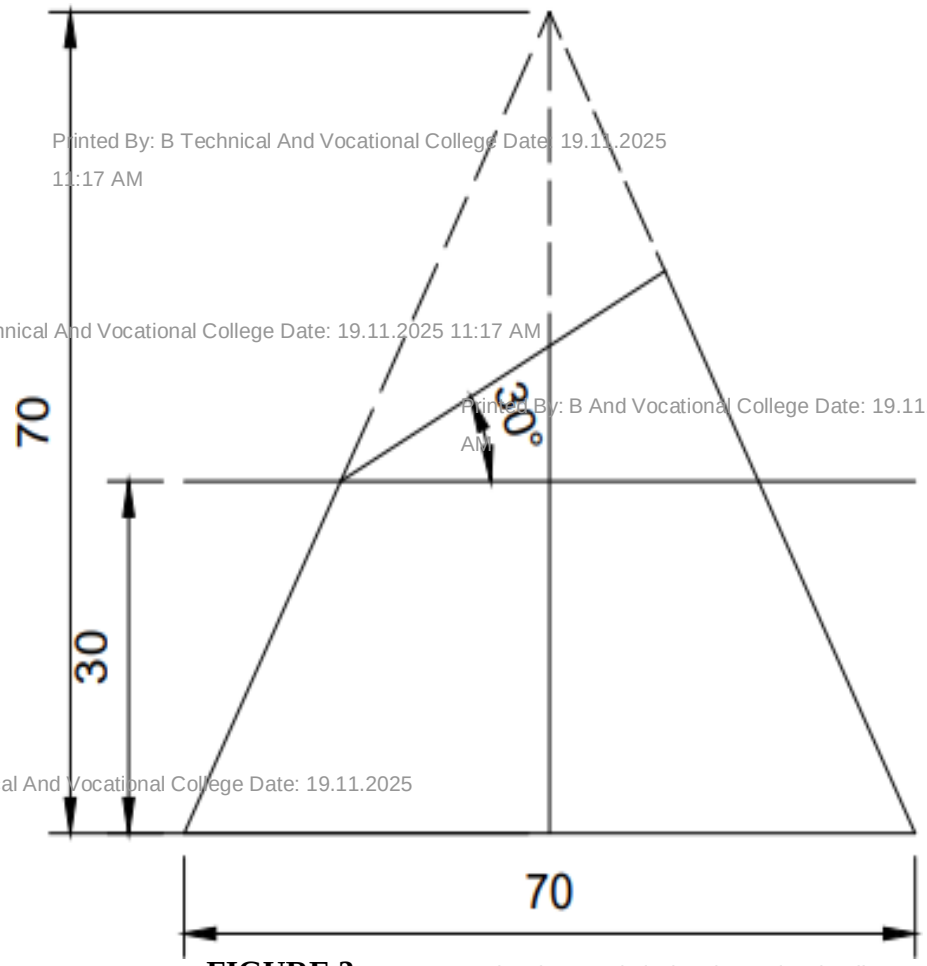


FIGURE 3

b. You are required to construct an ellipse using the concentric circles method. The ellipse should have a major diameter measu and a minor diameter measuring 52 mm. Show your drawing in the drawing paper provided. (10 Marks)

14. You are a designer in a Design company and you intend to design a machine bracket using the given views in first angle projection as shown in Figure 4. Draw a pictorial image in oblique projection, with corner Z as the lowest point. (20 Marks)

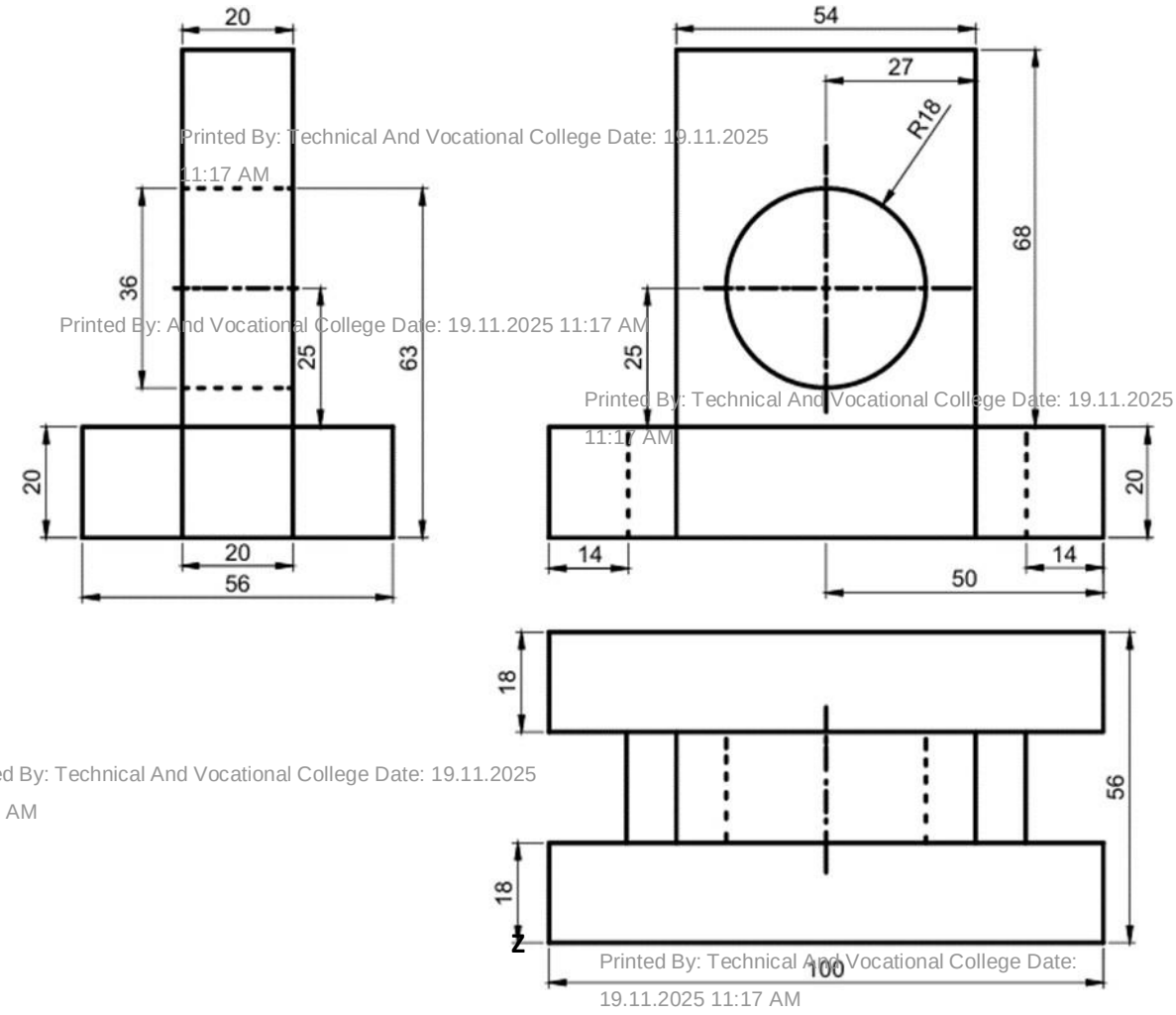


FIGURE 4