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071305T4EOP**ELECTRICAL OPERATION (POWER OPTION) LEVEL 5****ENG/OS/PO/CC/ 04 / 5**

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Prepare and Interpret Technical Drawings

Date: 31.07.2025 07:48 AM

July/August 2025

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

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WRITTEN ASSESSMENT

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TIME: 3 HOURS**INSTRUCT CANDIDATE**

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1. This paper consists of **TWO** sections: **A** and **B**.
2. Attempt **ALL** questions in section A and **ANY THREE (3)** questions in section B.
3. Marks for each question are indicated in the brackets.
4. Candidates are provided with answer booklet.
5. **DO NOT** write on the question paper.

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This paper consists of THREE (3) 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)

Attempt ALL questions in this section.

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1. In technical drawing, several instruments are used. List FOUR drawing instruments used in technical drawing. (4 Marks)
2. In engineering drawing, different lines are used at specific points. Name FOUR types of lines and where they are used. (4 Marks)
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3. A technician intends to hatch his drawing in AutoCAD. List THREE hatch pattern settings he would modify to achieve his objective. (3 Marks)
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4. Using a ruler and a pair of compasses ONLY, construct a triangle with a perimeter of 121 mm in the ratio of 3:4:6. (4 marks)
5. Freehand sketching is the practice of drawing without the use of guiding instruments such as rulers or templates. Using freehand sketching, draw the following tools used in the electrical operation workshop. (3 marks)
- Ball peen hammer;
 - 1;
 - Long nose pliers.
6. Implementing safety practices in a Technical Drawing Room helps create a safe and efficient environment, preventing accidents and injuries. State TWO safety practices that should be adhered to in a technical drawing room. (2 marks)
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7. Using a ruler and a pair of compasses only, construct the following angles. (2 marks)
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- 30° (2 marks)
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8. Controlling a lamp from two positions involves using two two-way switches. Draw a wiring diagram for a lamp controlled from three different positions. (4 marks)
9. Diagrams are used in the preparation and interpretation of technical drawings in electrical operations. Describe the following types of diagrams. (2 marks)
- Layout diagram;
 - Schematic diagram. (2 marks)
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10. Orthographic projections are divided into two types. Sketch the conventional symbols of the following;
- First angle orthographic projections; (1 mark)
 - Third-angle orthographic projections. (1 mark)

11. Draw a circular arc of radius 20 mm tangent to two lines which are inclined at 120° to each other. (4 marks)

SECTION B (60 MARKS)

Attempt any **THREE** (3) questions in this section.

12.

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- a) Figure 1 below shows a bracket of an electrical installation device. By use of drawing instruments;
- i. Draw the figure (4 marks)
 - ii. Illustrate all construction lines; (3 marks)
 - iii. Insert 3 major dimensions. (3 marks)

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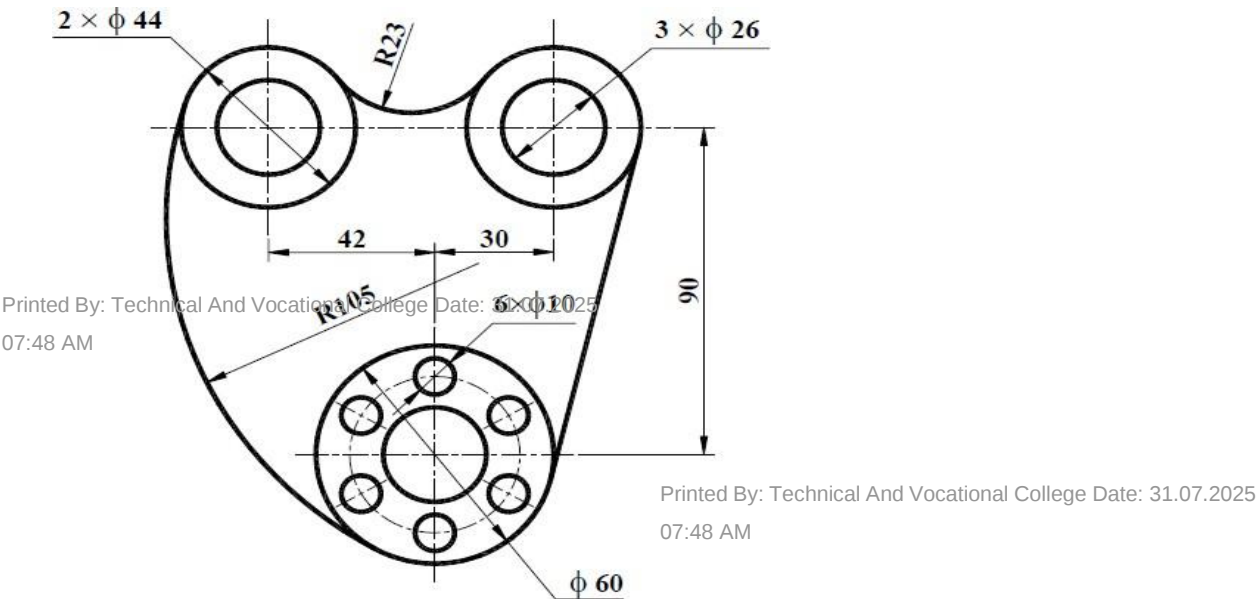


Figure 1

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- b) Construct a regular pentagon of sides 50mm. (5 marks)
- c) Construct a rectangle whose diagonal is 70 mm and dt is 21 mm. (5 marks)

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13. Figure 2 shows two orthographic views of a rectangular-based pyramid cut by a plane P-P.

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- i. Complete the plan; (5 marks)
- ii. Construct the true shape of the cut;
- iii. Draw an auxiliary view in the direction of the cutting plane P-P;

iv. p the pattern of the front elevation. (20 marks)

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view from the direction of the arrow; (5 marks)

b) Draw the plan view (6 marks)

c) Draw the end view; (5 marks)

d) Insert 4 major dimensions. (4 marks)



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15. Figure 4 shows two views of a machined block drawn in a first-angle projection. Draw the isometric view taking A as the lowest point (20 Marks)

