

071306T4EEN

ELECTRICAL ENGINEERING (POWER OPTION) LEVEL 6

ENG/OS/PO/CC/04/6

PREPARE AND INTERPRET TECHNICAL DRAWING

July/August 2024

Time: 3 Hours



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

WRITTEN ASSESSMENT

3 HOURS

INSTRUCTIONS TO CANDIDATE

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

This paper consists of SEVEN (7) printed pages

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

The following resources will be required during the assessment:

- *Drawing paper size A2*
- *T-square*
- *HB and 2H/3H/4H Pencils*
- *Set squares*
- *Printing paper size A4*
- *Printer*
- *Eraser*
- *Sharpener*
- *Engineering drawing set*
- *Masking tape*
- *Computer installed with AutoCAD software*

SECTION A (40 MARKS)

Answer ALL questions in this Section.

1. Sketch the conventional symbols of the following:
 - a) First angle orthographic projections
 - b) Third angle orthographic projections (2 marks)
2. Construct the following angles using a ruler and a compass **only**.
 - a) 75°
 - b) 15° (4 marks)
3. Care and maintenance of drawing equipment is crucial for ensuring accuracy, longevity, and optimal performance of your tools. Explain two care and maintenance practices that should be carried out on pencils. (2 marks)
4. Construct a hyperbola given the perpendicular distance between the focus and the directrix is 25 mm and the eccentricity $3/2$. (5 marks)
5. Draw a line 80mm long and divide it in the ratio 2:3. (3 marks)
6. A set square is a fundamental instrument in technical drawing, engineering, architecture, and woodworking. Explain any two uses of set squares in preparation and interpretation of technical drawing (2 marks)

7. Two views of a block are given in figure 1. Make an isometric sketch of the block taking corner “B” as the lowest point. (5 marks)

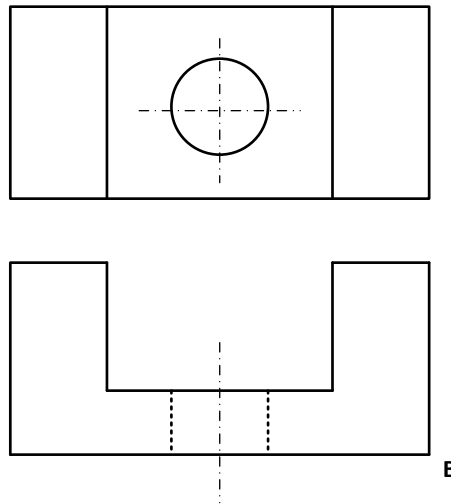


Figure 1

8. Sketch BS 3939 symbols for the following: (3 marks)
- Light bulb;
 - Fuse;
 - Resistor.
9. Briefly explain the following types of diagrams used in preparation and interpretation of technical drawings: (4 marks)
- Layout diagram
 - Schematic diagram
10. Construct a regular pentagon, given the length of side 40 mm (5 marks)
11. Figure 2 shows an isometric view of a wooden block. Sketch the views in third angle orthographic projection. (6 marks)

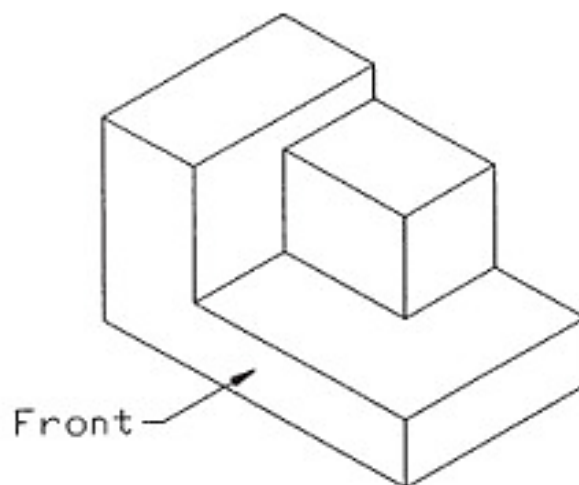


Figure 2

SECTION B (60 MARKS)

Answer **three** questions in this section. All questions carry equal marks.

12. Figure 3 shows the sectional orthographic view of an object. Perform the following tasks:

- a) draw the figure in AutoCAD software,
- b) include your name and index number,
- c) print on A4 size paper.

(20 marks)

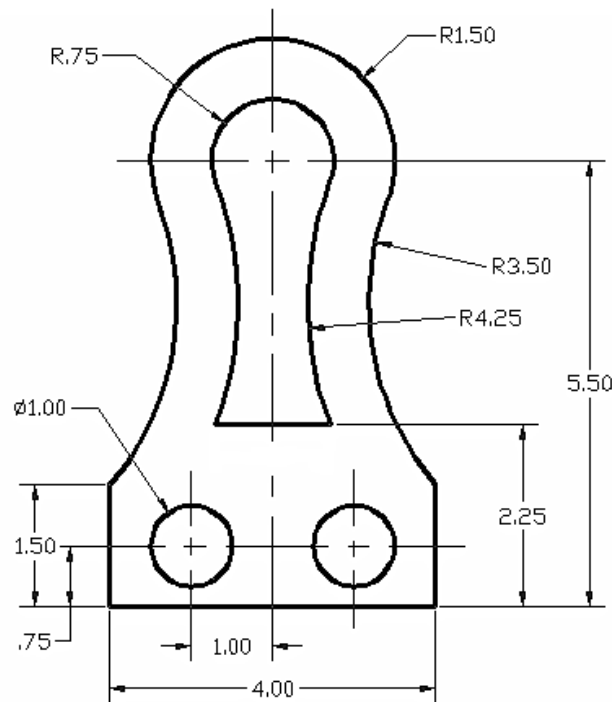


Figure 3

13. The front view and sectional side view of a casting is shown in figure 4. Draw the oblique projection when the receding axis is inclined at an angle of 45° with the horizontal.

(20 marks)

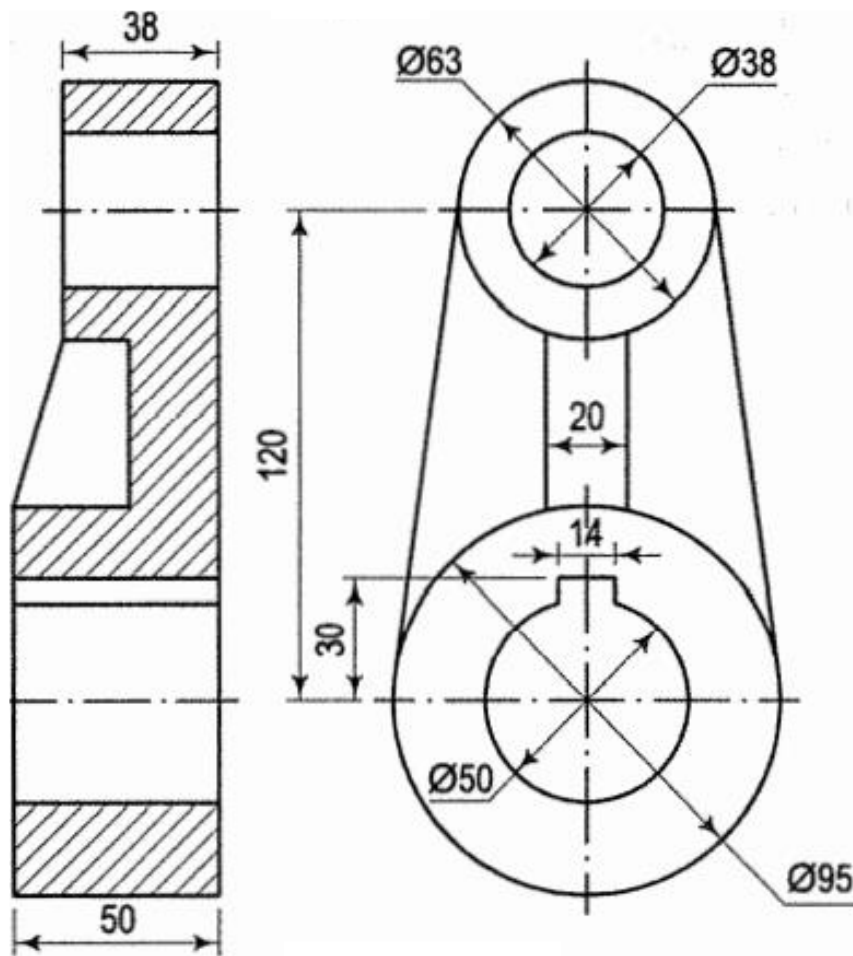


Figure 4

14. Figure 5 shows a jig, using Computer Aided Design program (CAD):

- Draw the view
- Include all dimensions
- Include your name and candidate number
- Print the layout on an A4 size paper

(20 marks)

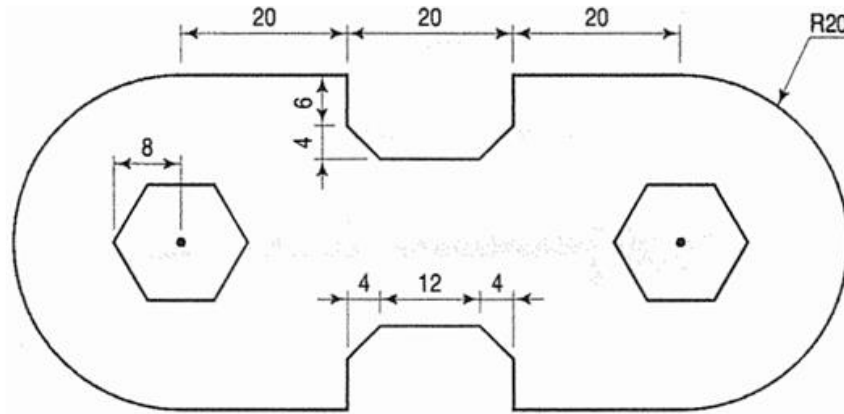


Figure 5

15. Figure 6 is a pictorial view in isometric projection. Draw the following views in first angle orthographic projection full-size

- a) Front view from the direction of the arrow
- b) Plan
- c) End view
- d) Insert five major dimensions.

(20 marks)

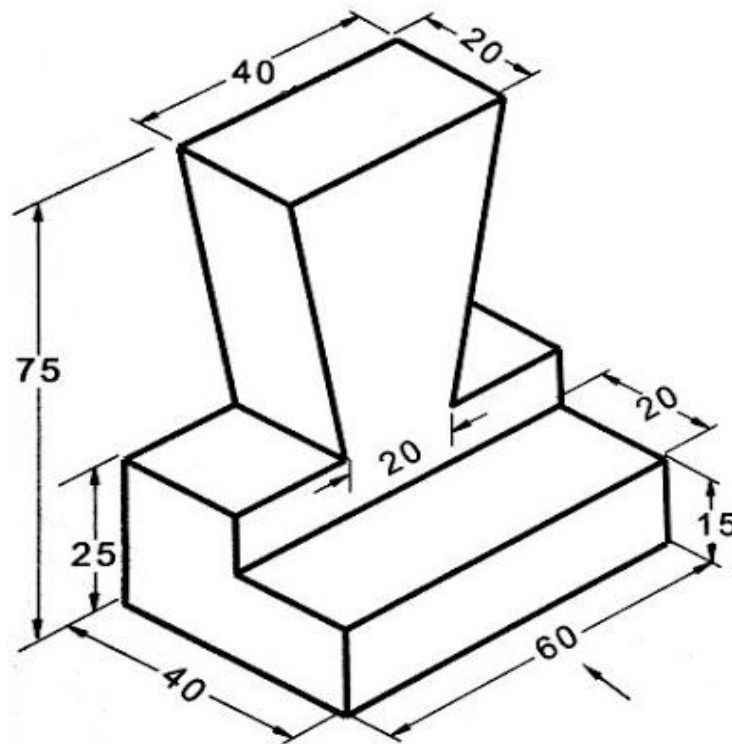


Figure 5

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