

MODULE III

AUTOMOTIVE ENGINEERING TECHNOLOGY LEVEL 5, LEVEL 6

ENG/OS/AUT/CC/02/5

Apply Technical Drawings

March/April 2026



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

WRITTEN ASSESSMENT

TIME: 3 HOURS

INSTRUCTIONS TO CANDIDATE

1. This paper consists of **TWO** sections: **A** and **B**.
2. **Answer 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 a separate answer booklet
5. Do not write on the question paper.

This paper consists of SEVEN (7) 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 in this section

1. Pencils with leads of different degrees of hardness or grades are available in the market. The selection of the grade depends on the line quality desired for the drawing. Identify TWO types of pencils, the nature and usage in the engineering drawing (2 Marks)
2. Lines are essential when drawing a component or in designing. Draw a line AB=80MM and divide the line into five equal parts. (3 Marks)
3. A compass is commonly used to draw circles of different diameters. Construct a circle and label the following parts.
 - a) Minor sector (2 Marks)
 - b) Diameter (1 mark)
 - c) Chord (1 mark)
4. A polygon is a plane figure bounded by more than four straight sides. Construct a regular pentagon polygon given a diagonal within a circle of diameter 60mm. (4 Marks)
5. To draw the circumference of a circle you should either calculate it, or use the construction method. Differentiate between the following terms:
 - a) Concentric circles (1 mark)
 - b) Eccentric circles (1 mark)
6. A technical person can use the graphic language as powerful means of communication with others for conveying ideas on technical matters. Describe TWO standard drawing conventions that should be followed when creating technical drawings. (4 Marks)
7. Using a pair of compasses and a ruler, construct and bisect the following angles:
 - a) 135° (3 Marks)
 - b) 30° (3 Marks)
8. Before you start any drawing, you first decide how large the drawings have to be. Name THREE types of scales. (3 Marks)
9. A technical person makes an orthographic sketch and isometric sketch. Briefly explain TWO differences between isometric and orthographic drawings (4 marks)

10. When interpreting as assembly drawing, its sectional view is important. Define the term sectional view. (2 Marks)
11. Title block is an important part one cannot ignore when drawing an assembly. State THREE importance information that should be included in the title block. (3 Marks)
12. Applying knowledge of technical drawing, tools and organization, explain why having an equipment box is considered beneficial for use in technical drawing. (3 Marks)

SECTION B (60 MARKS)

Answer Any THREE questions in this section.

13.

a) Show the standard symbol for the following projections:

i. First angle (2 Marks)

ii. Third angle projection (2 Marks)

b) The lines used in technical drawing have a definite pattern and thickness. Illustrate the following types of lines.

i. Visible outlines (1 mark)

ii. Centre lines (1 mark)

iii. Cutting plane (1 mark)

iv. Dimension lines (1 mark)

c) Using free hand sketch, sketch the following hand tools used in an Automotive workshop

i. Ball-pein hammer (2 mark)

ii. Hacksaw (2 mark)

iii. Open ended spanner (2 mark)

iv. Micrometer screw gauge; (2 mark)

v. Pipe wrench spanner; (2 mark)

vi. Try square (2 mark)

14. **Figure 1** shows orthographic views of a machine block, drawn in third angle projection.
Draw the isometric of the block taking “A” the lowest point. (20 Marks)

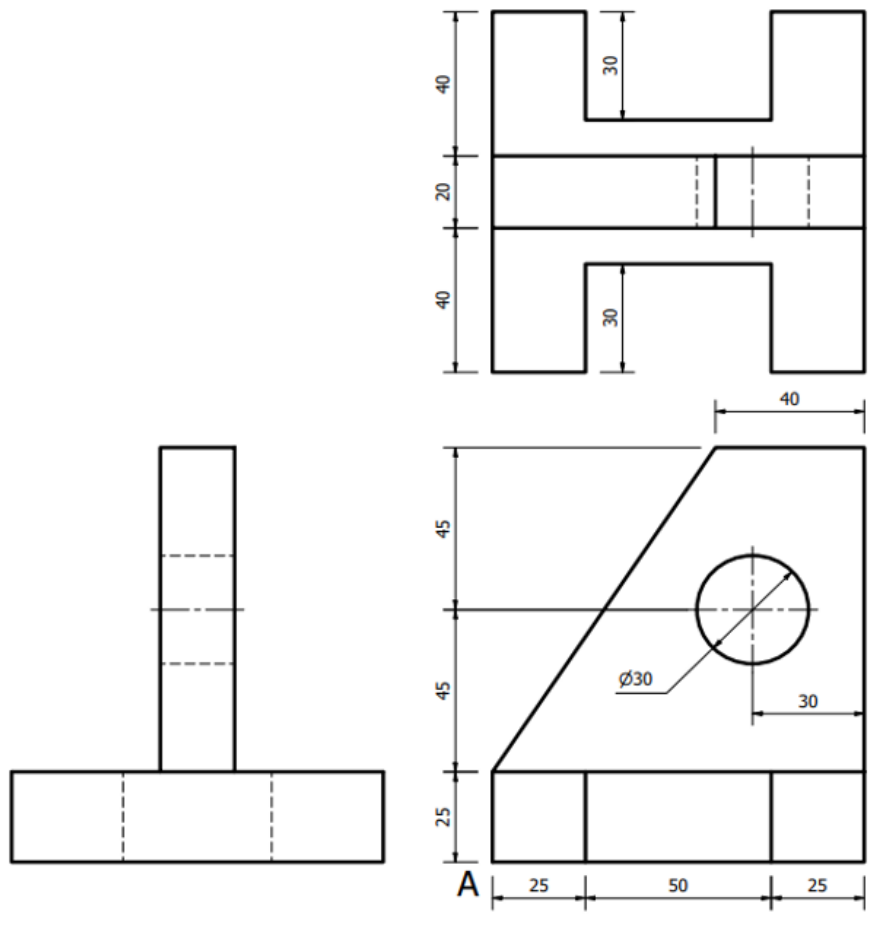


Figure 1

15. The **Figure 2** below shows a pictorial view of a spring hanger braker, using third angle projection; draw the following views, full scale size.
- A front elevation looking in the direction of Arrow A
 - an end elevation looking in the direction of Arrow B
 - A plan in progression with the view Include
 - All hidden details and six major dimensions
- (20 Marks)

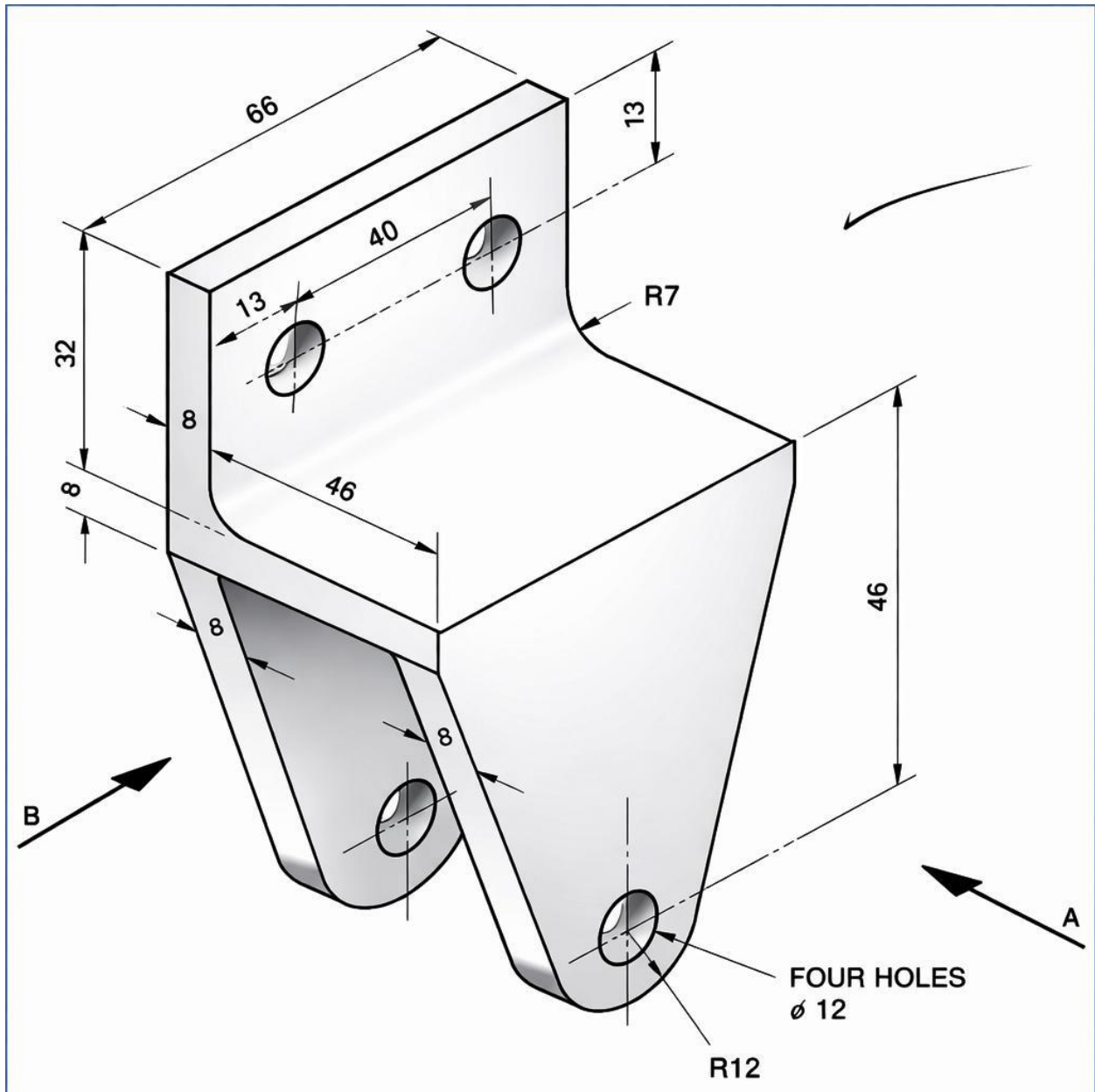


Figure 2

16.

- a) Explain FIVE the importance of technical drawing in engineering and manufacturing industries (10 marks)
- b) A draftsman needs some standard basic tools and equipment to draw. Explain FIVE Drawing equipment. (10 marks)

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