

071906T4AEN

Agricultural Engineering Level 6

ENG/OS/AGR/CC/02/6/A

Perform Workshop Processes and Materials

March/April 2025



**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 FOUR (4) 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)

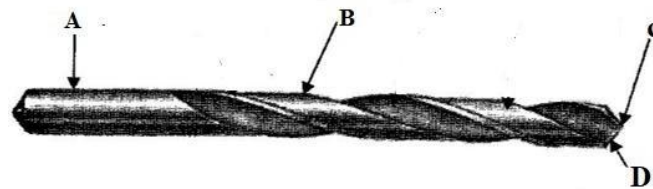
Attempt ALL the questions in this section.

1. You have been tasked to fabricate a project in the workshop. Explain ONE function of each of the following tools used when marking out. (4 Marks)

- a. Inside Calipers
- b. Vernier height gauge
- c. V-block
- d. Surface plate

2. The main function of a lathe is to remove metal from a piece of work to give it the required shape and size. Identify FOUR major units of the lathe machine. (4 Marks)

3. Figure 1 shows a drill bit. Name the parts labelled ABCD. (4 Marks)



4. Bench work involves hand operations to finish the work piece to the desired shape and size. Explain the following bench work processes.

- a. Chipping. (2 Marks)
- b. Draw filing. (2 Marks)

5. XYZ company has recruited you as a maintenance technician. You frequently use hammers in your daily activities. Outline FOUR safety precautions taken while working with the hammers. (4 Marks)

6. Care and maintenance of workshop tools and equipment increase their lifespan. State FOUR routine maintenance practices carried out on a workshop equipment. (4 Marks)

7. Farm workshop store procedures details Issuance and receiving of materials, tools and equipment. Enumerate FOUR contents of a tool issue/receive record book page in the farm workshop store. (4 Marks)

8. Metals physical and chemical properties affect their working qualities. Explain the following properties of metals. (4 Marks)
- Relative density
 - Fusibility
 - Malleability
 - Tenacity
9. **Figure 2** shows the scale of a precision distance measuring instrument used in the workshop.

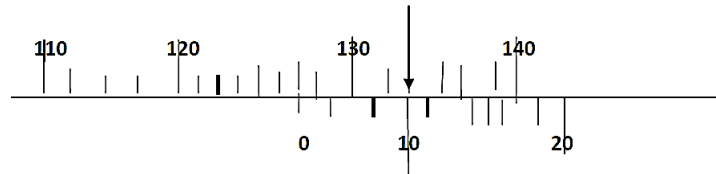


Figure 2

- Name the instrument (1 mark)
 - Give the reading. (3 Marks)
10. Arc Welding is one of processes used in joining metals. Explain TWO types of the arc welded joints.

SECTION B (60 MARKS)***Attempt Any THREE Questions in This Section***

11. The pedestal driller is commonly used in the fitting shop when producing holes on components of different types and sizes.
- a. Using a diagram, explain FOUR major functional parts of a pedestal type drilling machine. (16 Marks)
 - b. State FOUR safety precautions taken while using the drilling machine. (4 Marks)
12. In oxyacetylene gas welding, the weld is started by preheating the base metal and producing a small puddle of molten metal.
- a. Outline the procedure of lighting the gas welding equipment. (8 Marks)
 - b. With aid of diagram explain the leftward oxyacetylene gas welding technique. (12 Marks)
13. Cast iron is a widely used engineering material due to its constituency.
- a. With the aid of a sketch diagram, describe the manufacture of cast iron in the cupola furnace. (12 Marks)
 - b. State TWO machine components which are manufactured from grey cast iron. (2 Marks)
14. A proper and effective workshop layout enhances effective, economical and increased production.
- a. Identify FOUR ways of arranging facilities in a workshop. (4 Marks)
 - b. Outline EIGHT conditions of a good workshop. (8 Marks)
 - c. Explain FOUR factors that contribute to marketability of workshop fabricated products. (8 Marks)