



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

QUALIFICATION CODE : 071606T4MCT
QUALIFICATION : Mechatronic Technician Level 6
UNIT CODE : ENG/OS/MC/CC/03/6/A
UNIT OF COMPETENCY : Perform Workshop Processes and Practices

WRITTEN ASSESSMENT

INSTRUCTIONS TO CANDIDATES

1. You have **THREE HOURS** to answer all the questions.
2. Marks for each question are indicated in the brackets.
3. The paper consists of **TWO** sections; **A** and **B**.
4. You are provided with a separate answer booklet

SECTION A (40 marks)

Answer all questions in this section

1. List two major differences between a lathe machine and a milling machine? (4 Marks)
2. What is the function of each of the following as used in a lathe machine? (4 Marks)
 - i. Mandrel
 - ii. Lathe dog
3. State two importance of a technical drawing a workshop (2Marks)
4. List four main causes of injury while using hand tools. (4 Marks)
5. What is the difference between end milling and face milling? (4 Marks)
6. List any three types of inspections that are done in a workshop? (3 Marks)
7. What is the function of each of the following part of a lathe machine? (4 Marks)
 - (i) Hand Wheel:
 - (ii) Lead Screw
8. Name two tools that are specialized in generating threads. (2 Marks)
9. Differentiate between Soldering and brazing (4 Marks)
10. Give four functions of cutting fluid as used in machining at workshop. (4 Marks)
11. What are the three methods of waste disposal found in the workshop (3 Marks)
12. With two good points, discuss how does good housekeeping help in a workshop? (2 Marks)

SECTION B (60 marks)

This section contains FOUR Questions. Answer any THREE Questions

13.

- a) Discuss three reasons why maintenance inspections important? (6 Marks)
- b) With the aid of sketches, explain the following gas welding techniques. (8 Marks)
 - (i) Leftward technique
 - (ii) Rightward technique
- c) With neat sketches, give the application of each of the following devices. (6 Marks)
 - (i) Outside caliper
 - (ii) Pair of trammels

14.

- a) With the aid of well labelled sketches, explain five machining operations that can be done by drilling machine (15 Marks)
 - (i) Counter boring
 - (ii) Counter sinking
 - (iii) Tapping
 - (iv) Reaming
 - (v) Boring
- b) With a clear well labelled sketch, explain the working principle of Lathe machine. (5 marks)

15.

- a) It has been noted that long tool and equipment life is critical in reducing the operation cost and safety is guaranteed by their proper working condition. Discuss four ways through which tools and equipment are taken care and kept in proper working conditions in any mechanical workshop. (8 Marks)
- b) With the aid of neat sketches, explain the following as used in milling process. (6 Marks)
 - (i) Down milling
 - (ii) Up milling
- c) Explain the meaning of the following milling operations. (6 Marks)
 - (i) Plain Milling
 - (ii) Face Milling
 - (iii) End Milling

16.

- a) Discuss any five common defects encountered during welding? (10 Marks)
- b) The flux coating of the electrode performs very important functions which are essential for obtaining a weld of required quality; in terms of chemical composition, mechanical properties and weld metal cleanliness. Discuss any five functions of flux. (10 Marks)

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