

071606T4AMT

AUTOMOTIVE MECHATRONICS TECHNOLOGY LEVEL 6

ENG/OS/AMT/CR/09/6/A

MAINTAIN VEHICLE ELECTRONICS AND TRANSDUCERS

July/Aug 2023



**TVET CURRICULUM DEVELOPMENT
COUNCIL**

**ASSESSMENT AND CERTIFICATION
COUNCIL (CDACC)**

WRITTEN ASSESSMENT

Time: 3 Hours

INSTRUCTIONS TO CANDIDATE

1. This paper consists of **TWO** sections; **A** and **B**
2. Attempt all the questions in section **A** and any **THREE** questions in section **B**.
3. Marks for each question are indicated in brackets ().
4. You are provided with a separate answer booklet.
5. Do not write on the question paper.

This paper consists of THREE (3) printed pages.

Candidates should check the question paper to ascertain that all pages are printed as indicated and that no questions are missing.

Turn Over

SECTION A: (40 MARKS)

Attempt ALL questions in this section

1. Explain the difference between sensors and actuators. (4 Marks)
2. State any **three** actuators used in a vehicle. (3 Marks)
3. Explain the following types of sensors;
 - i. Oxygen sensors.
 - ii. Rain sensor.
 - iii. Mass air flow sensor.
 - iv. Light sensor. (8 Marks)
4. Outline **four** safety precautions when working on a vehicle electrical system. (4 Marks)
5. List any **five** tools used when servicing a vehicle electrical system. (5 Marks)
6. State **four** advantages of sensors as used in vehicles. (4 Marks)
7. Briefly describe the antilock brake system. (3 Marks)
8. Explain the use of traction control system. (4 Marks)
9. State **five** advantages of the electronic clutch control system. (5 Marks)

SECTION B: (60 MARKS)

Attempt any THREE questions in this section

10. a.) State **five** advantages of a petrol injection system. (5 Marks)
- b.) With the aid of a labelled diagram, explain the operation of a direct petrol injection system. (15 Marks)
11. Using appropriate block diagrams, explain each of the following types of control systems, stating three examples in each case;
- a) Open loop control system (10 Marks)
- b) Closed loop control system. (10 Marks)
12. Explain the operation of Metronic M3 engine management system. (20 Marks)
13. Using a suitable circuit diagram, describe the operation of central door locking system. (20 Marks)