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Date: 29.07.2025 07:44 AM

071605T4AUT**AUTOMOTIVE TECHNICIAN LEVEL 5****ENG/OS/AUT/CR/3/5/A**

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SERVICE VEHICLE FUEL SYSTEM

Date: 29.07.2025 07:44 AM

July/Aug 2025

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

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TIME: 3 HOURS

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INSTRUCTIONS TO THE CANDIDATE1. This paper consists of **TWO** sections: **A** and **B**.

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2. Attempt **ALL** the questions in Section **A** and any **THREE** questions from Section **B**.

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3. Marks for each question are as indicated.

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4. You are provided with a separate answer booklet.

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5. Do not write on the question paper.

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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.**

Turn Over

SECTION A (40 MARKS)***Attempt ALL the questions in this section***

1. Working in busy a w attention on safety and more consideration of life. State **four** precautions to be considered in observing workshop safety. (4 Marks)
2. Diagnosis of fuel system varies from the type of engine ignition. Petrol engines are spark ignition engines (SI) while diesel engines are compression ignition engines (CI). State **four** symptoms of failure in the fuel supply system. (4 Marks)
3. Explain the following terms as used in vehicle fuel system. (4 Marks)
 - i. Atomization
 - ii. Compression ratio
4. Diesel engines are fitted with two injection system, direct and indirect injection. Explain the difference between the **two** injection systems. (4 Marks)
5. Fuel injection pumps are used to pressurize fuel to a very high pressure. List **two** types of pumps used in compression ignition system. (4 Marks)
6. The fuel tanks are fitted with baffles (partitions). Explain **two** reasons why fuel tanks are fitted with baffles. (4 Marks)
7. When servicing vehicle fuel system it requires specific tools and equipment. As a trainee highlight **four** tools and equipment used in service of fuel system (4 Marks)
8. A modern diesel engine is fitted with a speed governor. State **four** the governor. (4 Marks)
9. The mixture of the fuel can be in two forms of; Lean mixture and Rich mixture. As an automotivian explain how to differentiate a fuel mixture which is rich or lean; (4 Marks)
10. Periodic servicing carried out on fuel injection pump, define the following terms as used in mechanical diesel pump. (4 Marks)
 - i. Calibration
 - ii. singing

SECTION B (60 MARKS)***Attempt ANY THREE questions in this section***

11.

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- a) A vehicle is brought into the workshop with a broken exhaust pipe. As a technician outline **five** Safety precautions to observe when carrying out repairs on the exhaust pipe. (10 Marks)

- b) The electric motor used by the modern vehicles since it is very efficient. Explain **five** steps to follow when servicing electrical fuel pump. (10 Marks)

12.

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- a) A vehicle is brought to the workshop for routine maintenance. Explain **five** symptoms that indicate a fuel filter is faulty. (10 Marks)
- b) Explain the functions of the following parts of in-line fuel system of a diesel engine. (10 Marks)

- i. Injector
- ii. Fuel feed pump
- iii. Fuel priming lever
- iv. Fuel priming lever
- v. Fuel tank

13.

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- a) The modern vehicle is fitted with electrical fuel system in injection know as common rail, outline **four** advantages of common rail system. (4 Marks)
- b) Car used in the petrol engine and performs many functions. As a trainee in automotive engineering, briefly explain **six** functions of carburetor used in traditional engine. (12 Marks)
- c) The fitting of fuel filter in the fuel system enhances engine performance, outline **four** effects of clogged fuel filter. (4 Marks)

14.

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- a) Injector nozzles plays major role in fuel system .As a trainee in automotive engineering explain **four** functions of injector nozzles. (8 Marks)
- b) Fuel tank consists of many parts. The layout below shows parts of fuel tank. Name and state the functions of marked parts A-F. (12 Marks)

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