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071604T4AUT

AUTOMOTIVE TECHNOLOGY LEVEL 4

ENG/OS/AUT/CR/3/4/A

Service and Repair Vehicle Fuel system

Mar/Apr 2025

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

WRITTEN ASSESSMENT

INSTRUCTIONS TO CANDIDATE

1. This paper consists of two sections; **A** and **B.**
2. Attempt **ALL** question in both sections.
3. Marks for each question are as indicated in the brackets.
4. You are provided with a separate answer booklet to answer the questions.
5. Do not write in this question paper.

This paper consists of FOUR (4) printed pages.

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

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SECTION A(10 MARKS)

Attempt all questions in this section. Each question carries one mark.

1. Which is the most commonly used fuel in gasoline engines?
   A. Propane
   B. Diesel
   C. Nitrogen
   D. Petrol
2. The operation of an internal combustion engine undergoes four-strokes for complete combustion to take place. Identify the correct order of the strokes.
   A. Compression stroke ⟶ intake stroke ⟶ power stroke ⟶ exhaust stroke
   B. Intake stroke ⟶ power stroke ⟶ compression stroke ⟶ exhaust stroke
   C. Intake stroke ⟶ compression stroke ⟶ power stroke ⟶ exhaust stroke
   D. Exhaust stroke ⟶ power stroke ⟶ intake stroke ⟶ compression stroke
3. The main function of the vehicle fuel system is that _____.
   A. It cools the engine
   B. It supplies fuel to the engine
   C. It transmits electricity to
   D. It provides power to the
4. What is the purpose of fuel pressure test in a fuel system diagnosis?
   A. To measure the temperature of the fuel
   B. To determine the type of fuel used
   C. To check if the fuel pump is working properly
   D. To test the colour of the fuel.
5. Identify the function of a fuel tank vent cap.
   A. To cool the fuel
   B. To prevent spillage
   C. To filter the fuel
   D. To increase the engine power
6. A _____is a component in the fuel system which ensures that the engine receives consistent flow of fuel regardless of speed and load applied to the vehicle.
   A. Fuel filter
   B. Fuel pump

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C. Fuel injector

D. Carburetor

7. Which fault causes a rich mixture?

A. A clogged fuel filter

B. Less air in the intake manifold

C. A malfunctioned oxygen sensor

D. Insufficient fuel pressure

8. For maximum power of a spark ignition engine the air-fuel ratio should be a _____under normal running on the road.

A. Stoichiometric mixture

B. Lean mixture

C. Rich mixture

D. Moderate mixture

9. A _____is a component in the fuel system which regulates the flow of fuel to the engine and prevents over-pressurization.

A. Fuel pump

B. Fuel filter

C. Fuel pressure regulator

D. Fuel filter

10. The size of inlet valve on an engine in comparison to exhaust valve is _____.

A. More

B. Less

C. Varying from design to design

D. The same

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SECTION B (40MARKS)

Attempt ALL questions in this section.

11. List TWO common types of fuel filters used in diesel engines. (2 Marks)
12. Name THREE types of injectors used in diesel engines. 3 Marks)
13. State THREE causes of fuel injector pump failure. (3 Marks)
14. Identify FOUR symptoms of air in the vehicle fuel lines system. (4 Marks)
15. Figure 1 shows S.I engine fuel lift pump. Name the parts labelled A, B, C and D. (4 Marks)

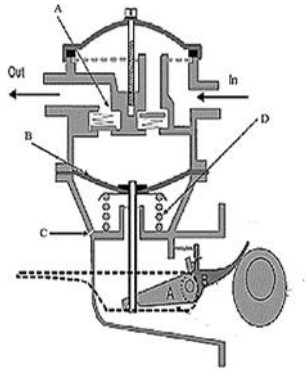

Figure 1

16. Figure 2 shows a simple carburetor. Name the parts labelled 1, 2, 3 and 4. (4 Marks)

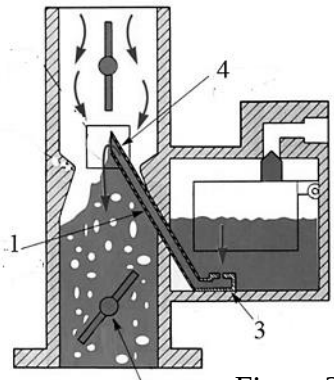

Figure 2

17. State FOUR effects of low quality fuel in vehicle fuel system. (4 Marks)
18. List FOUR steps you will follow to solve the problem of strong smell of fuel when you crank the engine, after replacing a fuel filter and fuel pump. (4 Marks)
19. List FOUR signs of a faulty fuel injector. (4 Marks)
20. Identify FOUR safety precautions observed when working on vehicle fuel system. (4 Marks)
21. Give the use of each of the following tools. (4 Marks)
    i. Fuel pressure gauge
    ii. Fuel filter wrench
    iii. Digital multimeter
    iv. Fuel injector puller