



NZQA accredited and registered provider

EFI Systems

PRACTICE PAPER ONLY

Test Paper One / Time allowed 90 mins

To be completed by the student

Student Name _____ **Date** __ / __ /2021

School/Provider _____

To be completed by the School Invigilator/Coordinator/Tutor

I confirm that this assessment was completed by the student named above as a closed book exercise under exam conditions

Invigilator Name _____

Invigilator Sign _____

Assessed By _____

Date __ / __ / 2021

**Assessor's
Stamp**

Assessors Note: Materials relate to unit standard 30436

SAMPLE ASSESSMENT INSTRUCTIONS

PLEASE MAKE SURE TO READ AND SIGN THIS SECTION

ASSESSMENT INSTRUCTIONS

- Before starting this assessment you should have achieved a mark of at least 80% for your workbook.
- Use a black or blue ball point pen. (do not use pencil)
- Write your full name on the cover page.
- This is a closed book assessment, so you cannot bring any reference material in, or seek help from anyone else.
- You need to answer all the questions.
- Read the questions carefully, and give detailed answers when asked to.
- You must complete the assessment under exam conditions.
- To achieve the unit standard you must show competency for each outcome.

Complete the following by circling Yes or No as appropriate:

Are you ready to be assessed? **Yes No**

Have the assessment instructions these been explained to you? **Yes No**

Do you understand the assessment instructions? **Yes No**

Have you all the materials/resources that you need for this assessment? **Yes No**

Please sign to acknowledge that you have read these instructions and are ready to be assessed.

Student Signature: _____ Date: _____

You must complete the assessment instructions on Page 2 before starting this assessment!

ELEMENT ONE

Demonstrate knowledge of petrol as an automotive fuel.

1. Complete the table for the most popular petrol that is sold in New Zealand.

	Grade	Rating	Colour
Petrol 1			
Petrol 2			

2. Describe the main differences between 91 and 96 graded petrol.

3. Why is upper cylinder lubricant used as an additive in petrol?

4. Why is electronic fuel injector cleaner used as an additive in petrol?

ELEMENT TWO

Demonstrate knowledge of petrol combustion processes.

1. What is meant by the term stoichiometric ratio?

2. What is a lean air fuel mixture and how does it affect vehicle performance?

3. What is a rich air fuel mixture and how does it affect vehicle performance?

4. Describe what should happen in the combustion chamber during normal combustion.

5. Describe the effects of each of the following on engine performance.

Detonation

Pre-ignition

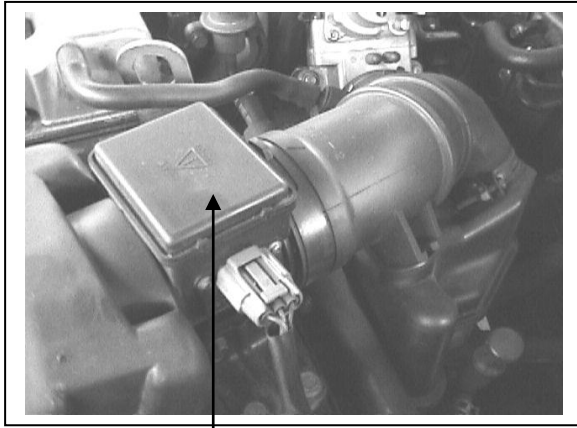
Spark knock

Dieseling

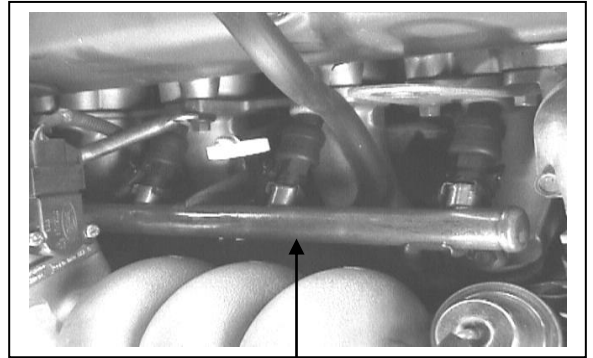
ELEMENT THREE

Demonstrate knowledge of an electronic fuel injection (EFI) system.

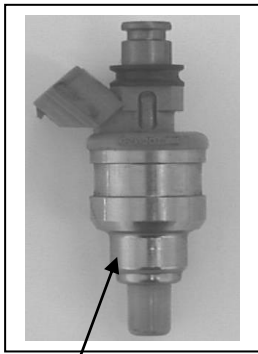
1. Identify the components labelled A-G in the following photographs.



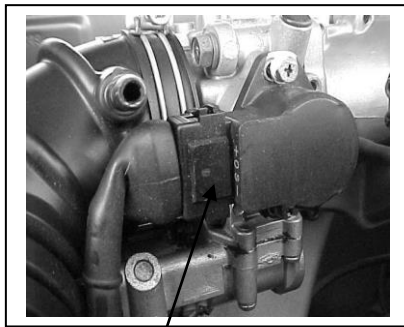
A



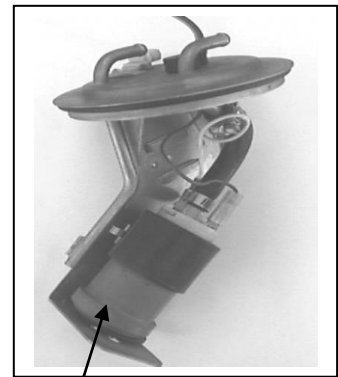
B



C



D



E

A	
B	
C	
D	
E	
F	
G	



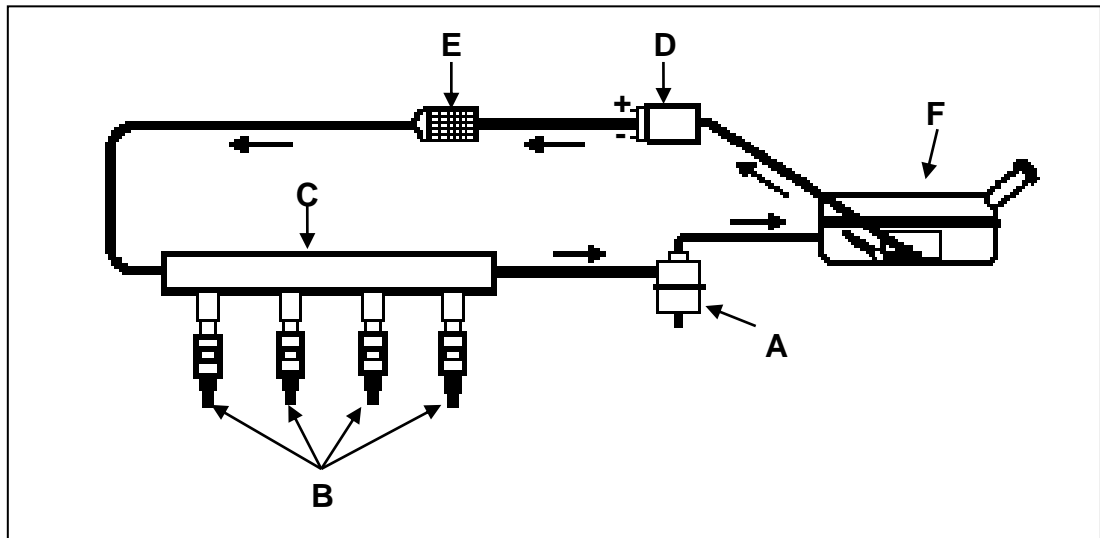
F



G

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2. Identify the components labelled A-F in the following diagram.



A		B	
C		D	
E		F	

3. Match up the EFI fuel components with the most likely location and function.

A	Air flow meter		1	Mounted on the throttle body to detect throttle opening.
B	ECU		2	Used by the ECU to determine air pressure in the inlet manifold
C	Engine temperature sensor		3	Usually mounted inside the vehicle under the kick panel and receives and interprets information from sensors to deliver the appropriate amount of fuel for the engine operating conditions.
D	Throttle position sensor		4	Mounted in the intake ducting and measures intake air volume.
E	MAP sensor		5	Mounted on the hottest point of the engine to measure heat

4. Describe the function of each of the following fuel tank components:

Expansion chamber

Anti blow back valve

Pick up tube

Pressure/vacuum valve

Filter

Filler cap

5. Explain how fuel is supplied into an EFI system

6. Explain how fuel is metered and delivered into the engine

7. What safety precautions should be followed when working with pressurised fuel lines?

8. What safety precautions should be followed to prevent petrol-rich fumes entering the catalytic converter?

FINISHED? CHECK THAT YOU HAVE ATTEMPTED ALL QUESTIONS!



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