



**NATIONAL EXAMINATION
AND SCHOOL INSPECTION
AUTHORITY**

T159

08:30 – 11:30 AM

Names.

Index number

TVET NATIONAL EXAMINATION, RTQF LEVEL 5, 2020-2021

QUESTIONS and ANSWERS BOOKLET

OPTION/TRADE: **AUTOMOBILE ELECTRICITY AND ELECTRONICS SYSTEMS**

SUBJECT: Automotive engine and auxiliaries systems

ACADEMIC YEAR: 2020-2021

Read carefully the instructions

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TVET NATIONAL EXAMINATION, RTQF LEVEL 5, 2020-2021

INSTRUCTIONS TO CANDIDATES: PART I (Answer Booklet)

1. A candidate should fill in the actual names and the index number on the cover of this questions and answer booklet on the provided place (Black Box).
2. It is illegal for a candidate to write any of his/her names, index number or a school name inside the answer booklet.
3. A candidate should check if all pages of the answer booklet are complete. No candidate should remove or tear any pages or part of it from the answer booklet.
4. A candidate should answer in the language in which the examination is set. (See page **(ii)**)
5. A candidate should sign on the sitting plan when submitting the answer booklet. He/she has also to check if the answer booklet is well sealed.
6. No extra paper is allowed in the examinations room. If a candidate is caught with it his/her results will be nullified.
7. No candidate is allowed to write answers not related to the subject being sat for, otherwise it will be considered as a cheating case.
8. Write your answers on the 12 lined pages (From page 1 of 12 to page 12 of 12).
9. Use the last non-lined pages as draft.
10. Results for any candidate who is caught in examination malpractices are nullified. The cheating can be recognized during examinations administration, marking exercise or even thereafter.

TVET NATIONAL EXAMINATION, RTQF LEVEL 5, 2020-2021

OPTION/TRADE: AUTOMOBILE ELECTRICITY AND ELECTRONICS SYSTEMS

SUBJECT: Automotive engine and auxiliaries systems

DURATION: 3 hours

INSTRUCTIONS TO CANDIDATES: PART II (Question paper)

The paper is composed of two (2) Sections as follows:

Section I: Attempt all the Twelve (12) questions (60 marks)

Section II: Attempt any Four (4) questions out of Six (6) (40 marks)

Allowed materials:

- Ruler or square
- Calculator

Note:

Every candidate is required to carefully comply with the provided assessment instructions.

Section I : Attempt all the Twelve (12) questions

(60 marks)

- 01.** Mention five (5) components that can be visually inspected on a cooling system. **(5 marks)**
- 02.** List five (5) functions of lubrication system on automobile engine. **(5 marks)**
- 03.** Copy and Answer the following statements by **True** if the statement is correct or **False** if the statement is incorrect. **(5 marks)**
- a) Viscosity is the property of oil to reduce friction
 - b) Oiliness is the lowest temperature at which the oil will flow from its container.
 - c) Pourpoint is a measurement of a fluid's thickness, or resistance to flow.
 - d) Flash point is the temperature which oil vapors will continue to burn after the source is removed at least five seconds
 - e) Fire point is the temperature at which vaporized oil can be ignited by external source but when the source is removed, the vapor will cease to burn.
- 04.** Identify any five (5) types of oil pump used in lubrication system. **(5 marks)**
- 05.** Write down any five (5) engine oil additives and their respective functions. **5 marks)**

- 06.** Differentiate oxidation from corrosion. **(5 marks)**
- 07.** State the roles of exhaust system in motor vehicles **(5 marks)**
- 08.** Explain the two (2) types of silencing in exhaust system. **(5 marks)**
- 09.** Highlight the strategies for reducing pollutant in exhaust system. **(5 marks)**
- 10.** State five (5) stresses on which the exhaust system is exposed. **(5 marks)**
- 11.** List down five (5) functions of cooling system on an internal combustion engine. **(5 marks)**
- 12.** Enumerate any five (5) faults than can occur in the cooling system. **(5 marks)**

Section II: Attempt any Four (4) questions out of Six (6) (40 marks)

13. Identify any five (5) parts of cooling system and their respective functions. (10 marks)
14. By using a wet sump lubrication system circuit diagram, explain its operating principle. (10 marks)
15. State any five (5) engine oil additives and their respective functions. (10 marks)
16. (a) With a neat sketch, describe the main components of the exhaust system from the operating principle.
- (b) Differentiate turbocharged engine from aspirated engine. (10 marks)
17. Highlight the possible causes of the following condition on the Exhaust system diagnosis:
- (a) Excessive exhaust noise
- (b) Exhaust system Mechanical noise. (10 marks)
18. (a) What is the purpose of pressure testing of the cooling system?
- (b) Mention all necessary steps followed when testing the pressure of the cooling system. (10 marks)

Do not write anything on this page !

