



**ATC – Automotive engine and auxiliaries systems**

**T164**

**Tuesday, 20/7/2021**

**08:30 - 11:30 AM**

**Names**

Index number

**TVET NATIONAL EXAMINATION, RTQF LEVEL 5, 2020-2021**

## QUESTIONS and ANSWERS BOOKLET

## OPTION/TRADE: AUTOMOBILE TRANSMISSION AND CONTROL SYSTEMS

SUBJECT: **Automotive engine and auxiliaries systems**

ACADEMIC YEAR: 2020-2021

Read carefully the instructions on page (i) & (ii).

**UNITED STATES GOVERNMENT**

[illegible]



# 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 TRANSMISSION AND CONTROL  
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.** State the roles of exhaust system in motor vehicles. **/5 marks**
- 02.** Explain the two (2) types of silencing in exhaust system. **/5 marks**
- 03.** Highlight the strategies for reducing pollutant in exhaust system. **/5 marks**
- 04.** State five (5) stresses on which the exhaust system is exposed. **/5 marks**
- 05.** List down five (5) functions of cooling system on an internal combustion engine. **/5 marks**
- 06.** Enumerate any five (5) faults that can occur in the cooling system. **/5 marks**
- 07.** List five (5) components that can be visually inspected on a cooling system. **/5 marks**
- 08.** Enumerate five (5) functions of lubrication system on automobile engine. **/5 marks**

**09.** Read carefully the statements below then answer by **True** if the statement is correct or **False** if the statement is not correct.

**/5 marks**

- a) Viscosity is the property of oil to reduce friction
- b) Oiliness is the lowest temperature where 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 at which oil vapors will continue to burn after the source is removed at least five seconds
- e) Fire point is the temperature at which where vaporized oil can be ignited by external source but when the source is removed, the vapor will cease to burn

**10.** Mention any five (5) types of oil pumps used in lubrication system.

**/5 marks**

**11.** List any five (5) engine oil additives and their respective functions.

**/5 marks**

**12.** Differentiate oxidation from corrosion.

**/5 marks**

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

- 13. (a)** With a neat sketch, describe the main components of the exhaust system from the operating principle. **/7 marks**
- (b)** Differentiate the turbocharged engine from the aspirated engine. **/3 marks**
- 14.** Identify the possible causes of the following conditions on the Exhaust system diagnosis:
- (a)** Excessive exhaust noise
- (b)** Exhaust system Mechanical noise. **/10 marks**
- 15. a)** What is the purpose of pressure testing the cooling of system? **/2 marks**
- b)** List all necessary steps followed when testing pressure of the cooling system. **/8 marks**
- 16.** List down any five (5) parts of cooling system and their respective functions. **/10 marks**
- 17.** By using a wet sump lubrication system circuit diagram, explain its operating principle. **/10 marks**
- 18.** List any five (5) engine oil additives and their respective functions. **/10 marks**

***Do not write anything on this page !***





