



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

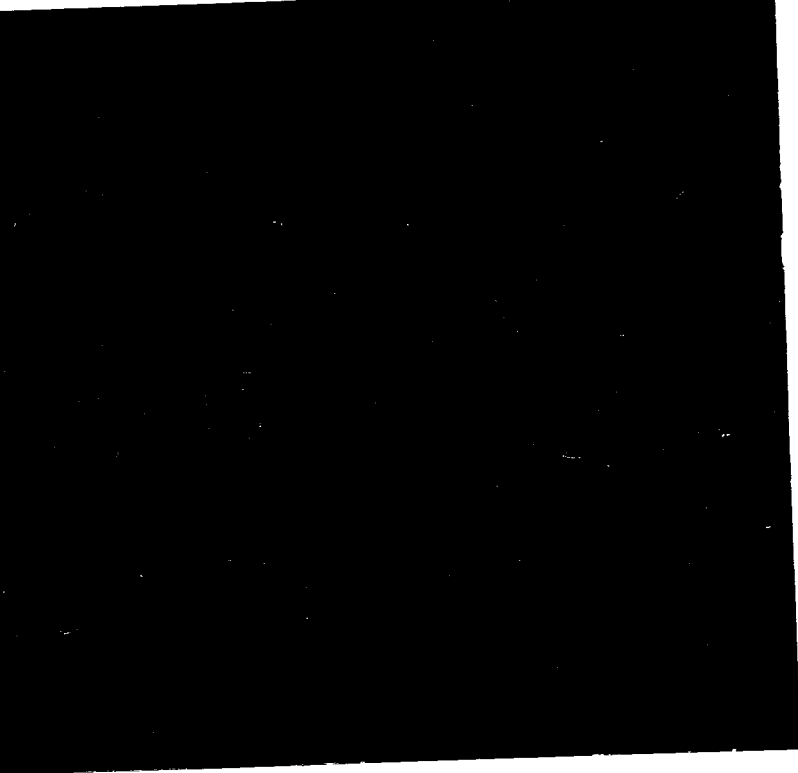
SUBJECT: Automotive Transmission System

ACADEMIC YEAR: 2020-2021

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

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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 TRANSMISSION AND CONTROL
SYSTEMS**

SUBJECT: Automotive Transmission System

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)

1. Read carefully the statements below, then answer by **YES** or **NO**:

- a) When the clutch is engaged, the power is transmitted from the engine to the driving wheels through the transmission system and the vehicle starts moving.
- b) When the clutch is disengaged, the power is not transmitted to the rear or driving wheels and the vehicle stops while the engine is still running.
- c) The clutch is engaged when: starting the engine, when stopping the vehicle, when shifting the gears and when idling the engine.
- d) The clutch is engaged when the vehicle has to move and is kept engaged when the vehicle is moving.
- e) When the clutch pedal is up (no force applied on it) the clutch is disengaged.

/5 marks

2. (a) What is a positive (dog) clutch?

/2 marks

(b) Enumerate three (3) advantages of positive clutches.

/3 marks

3. (a) If there are seven (7) clutch plates in a multi-plate clutch, what is the number of pairs of contact surfaces?

/2 marks

(b) Bring down three (3) types of pressure plate assembly.

/3 marks

4. Enumerate any five (5) parts of a typical friction clutch system with a hydraulic linkage. /5 marks
5. State two (2) functions of a pressure plate assembly. / 5 marks
6. Differentiate manual transmission from manual transaxle. /5 marks
7. State at least five (5) basic parts of a manual transmission. /5 marks
8. Answer by **True (T)** or **False (F)** for the following statements:
- A manual transmission in proper operating condition should:
- (a) Be able to increase torque going to the drive wheels for quick acceleration.
 - (b) Supply different gear ratios to match different engine load conditions.
 - (c) Have a reverse gear for moving backwards.
 - (d) Provide the driver with an easy means of shifting transmission gears.
 - (e) Facilitates engine idling while the vehicle is stationary. /5 marks
9. Explain the main difference between manual and automatic transmissions. /5 marks
10. Explain “Lock up torque converter” and give its parts. /5 marks
11. Fill in the following (.....) with the correct answer: /5 marks
- A planetary gearset consists of a gear, several Gears..... gear....., and a gear.
12. List the five (5) functions of a planetary gear set. /5 marks

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

13. Enumerate ten (10) necessary steps followed when bleeding hydraulic clutch. **/10 marks**

14. Differentiate a single plate clutch from a multiplate clutch. **/10 marks**

15. List down the procedures for removing a manual transmission. **/10 marks**

16. a) What is torque converter? **/2 marks**

b) List down and explain the four (4) main components of an automatic transmission. **/8 marks**

17. a) Pinpoint five (5) possible causes of an automatic transmission with incorrect shift points. **/5 marks**

b) What are the five (5) possible causes of a (whining, whirring, grinding) noisy in an automatic transmission? **/5 marks**

18. Identify five (5) functions of the oil pump in an automatic transmission. **/10 marks**

Do not write anything on this page !

