

Name _____ Index No. _____

2503/105
VEHICLE TECHNOLOGY AND
PRACTICE
Oct/Nov. 2015
Time: 3 hours

Candidate's Signature _____

Date _____



THE KENYA NATIONAL EXAMINATIONS COUNCIL
DIPLOMA IN AUTOMOTIVE ENGINEERING

MODULE I

VEHICLE TECHNOLOGY AND PRACTICE

3 hours

INSTRUCTIONS TO CANDIDATES

- Write your name and index number in the spaces provided above.
Sign and write the date of examination in the spaces provided above.
You should have Drawing instruments for this examination.
This paper consists of **EIGHT** questions in **TWO** sections; A and B.
Answer a total of **FIVE** questions in the spaces provided in this question paper as follows:
Any **TWO** questions from section A;
Any **TWO** questions from section B;
Any other **ONE** question from either section A or B.
All questions carry equal marks.
Candidates should answer the questions in English.

For Examiner's Use Only

Section	Question	Maximum Score	Candidate's Score
A		20	
		20	
B		20	
		20	
A or B		20	
TOTAL SCORE			

This paper consists of 20 printed pages.
Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

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Turn over

SECTION A

Answer at least TWO questions from this section in the spaces provided.

1. (a) (i) State **two** functions of a clutch in a vehicle.
(ii) State **three** factors upon which the torque transmitted by a clutch depends on. (5 marks)
- (b) With the aid of a diagram, explain the operation of a torque converter fitted in a vehicle. (15 marks)
2. (a) State **four** advantages of employing air suspension in vehicles. (4 marks)
- (b) Using a labelled diagram, explain the operation of an air suspension system for commercial vehicles. (16 marks)
3. (a) State **two** advantages and **two** limitations of auxiliary brakes in vehicles. (4 marks)
- (b) With the aid of a diagram, explain the operation of a hydraulic retarder. (16 marks)
4. (a) (i) State **two** requirements of a power assisted steering system.
(ii) State **two** advantages of a power assisted steering over manual steering. (4 marks)
- (b) With the aid of a diagram, explain the operation of a power assisted steering system. (16 marks)

SECTION B

Answer at least TWO questions from this section in the spaces provided.

5. (a) State **two** causes for each of the following manual gearbox faults:
 - (i) Gears jump out of mesh
 - (ii) Gears noisy when shifting (4 marks)
- (b) Describe the procedure to follow in replacing worn synchroniser units for a manual gearbox fitted on a car. (16 marks)
6. (a) State **two** causes for each of the following:
 - (i) vehicle wanders;
 - (ii) hard steering. (4 marks)

