



TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering and Technology

DEPARTMENT OF MECHANICAL AND AUTOMOTIVE ENGINEERING

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN MECHANICAL ENGINEERING (DMEN 6)

EAU 2306 VEHICLE TECHNOLOGY AND PRACTICE IV

END OF SEMESTER EXAMINATION

SERIES: DEC 2016 PAPER-B

TIME: 2 HOURS

DATE: 2016

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of FIVE questions. Answer TWO questions from section A and ONE Question from section B.

Do not write on the question paper.

SECTION A

Answer any TWO Questions from this section

Question One

(a) Explain the need for a four-wheel drive system.

(4 marks)

(b) With the aid of a well labeled diagram, explain the operation of the transfer gearbox used in the four wheel drive system

(12 marks)

(c) State any four advantages of a part-time four wheel system.

(4 marks)

Question Two

(a) State the functions of the following:-

(i) Differential lock

(ii) Centre differential

(2 marks)

(b) Explain the principle of operation of the third differential

(4 marks)

(c) With the aid of a diagram, explain the operation of a viscous coupling slip differential

(14 marks)

Question Three

(a) State three advantages and two disadvantages of the fluid flywheel

(5 marks)

(b) With the aid of a circuit diagram, explain the engagement of the reverse gear in a three speed automatic gearbox.

(13 marks)

(c) Explain the function of stator of the torque converter.

(2 marks)

SECTION B

Answer One Question from this section

Question Four

Outline the checks to be carried out a vehicle before taking it for inspection

(20 marks)

Question Five

(a) Explain any four routine maintenance operations required by an automatic gearbox.

(8 marks)

(b) Describe a procedure to replace the differential mounting bearings, explaining the adjustments carried out.

(12 marks)