



TECHNICAL UNIVERSITY OF MOMBASA
**Faculty of Engineering &
Technology**

DEPARTMENT OF MECHANICAL & AUTOMOTIVE ENGINEERING
DIPLOMA IN MECHANICAL ENGINEERING (AUTOMOTIVE OPTION)

EAU 2307: AUTO ELECTRICAL TECHNOLOGY III

END OF SEMESTER EXAMINATION

SERIES: APRIL 2014

TIME ALLOWED: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer booklet*
- *Drawing Instruments*
- *Electronic Calculator*

This paper consists of **TWO** sections **A** and **B**

Answer **TWO** questions in section **A** and any other **ONE** question from section **B**

Maximum marks for each part of a question are as shown

This paper consists of **THREE** printed pages

SECTION A (Attempt any TWO questions from this section)

Question One

- a) Define ventilation in motor vehicle. State TWO types of ventilation systems and distinguish between them. **(4 marks)**
- b) List FOUR types of controls used for effective ventilation system. **(2 marks)**
- c) With the aid of a neat diagram, describe the operation of a temperature mixing flap used in ventilation system. **(4 marks)**

Question Two

- a) Give FOUR functions of an air conditioning system used in automobiles. **(4 marks)**
- b) With the aid of a neat sketch, describe the construction and operation of an air conditioning system used in a motor vehicle. **(16 marks)**

Question Three

- a) State FOUR reasons why electronics and computers control is used nowadays in automobiles. **(4 marks)**
- b) With the aid of neat sketches, describe the operation of the following: **(16 marks)**
 - (i) Mechanical Pressure Sensor
 - (ii) MAP Sensor

SECTION B (Answer only ONE question from this section)

Question Four

An air conditioning system using R12 as a refrigerant is to be replaced by r134a refrigerant. Describe a practical procedure for completely flashing the system. **(20 marks)**

Question Five

A vehicle suspected to have a faulty lighting system is brought to the workshop. Describe a practical procedure for carrying out a routine maintenance on the vehicle lighting system. **(20 marks)**