



MERU UNIVERSITY COLLEGE OF SCIENCE & TECHNOLOGY

P.O. Box 972-60200 Meru - Kenya. Tel: 020-2092048, 020 2069349
Fax: 020-8027449

UNIVERSITY EXAMINATIONS 2012/2013

FIRST YEAR, SEMESTER TWO, EXAMINATIONS FOR CERTIFICATE IN
AUTOMOTIVE TECHNOLOGY

EMC 0108: AUTO ELECTRICS I

DATE: AUGUST 2012

TIME: 1½ HOURS

INSTRUCTIONS: Answer question *one* and any other *two* questions

QUESTION ONE – (30 MARKS)

- (a) State the Ohm's Law. (2 Marks)
- (b) State four applications of diodes in electronics. (4 Marks)
- (c) Name three types of electrical circuits. (3 Marks)
- (d) List five components that make up electrical circuits. (5 Marks)
- (e) State three causes of car battery failure (3 Marks)
- (f) Using a sketch explain the generator rule. (4 Marks)
- (g) State two applications of transistors in electronic circuits. (2 Marks)
- (h) State two advantages of fuel injection over carburetors. (2 Marks)
- (i) State three disadvantages of conventional coil ignition. (4 Marks)
- (j) State two types of motors used in starting systems. (2 Marks)

QUESTION TWO – (15 MARKS)

- (a) Using a diagram describe how starter switching circuit works. (6 Marks)
- (b) Name two sensors used in electronic fuel injection and explain their function. (4 Marks)
- (c) Define the term 'excitation' in relation to alternators. (2 Marks)
- (d) Using a diagram briefly describe a full wave rectifier. (3 Marks)

QUESTION THREE – (15 MARKS)

- (a) Using a diagram describe the operation of a D jectronic electronic fuel injection system. (7 Marks)
- (b) Using a circuit diagram describe the operation of a battery excited alternator. (5 marks)

QUESTION FOUR – (15 MARKS)

- (a) Using a circuit diagram describe operation of conventional coil ignition system. (6 Marks)
- (b) State three factors that determine the amount of voltage produced by a generator. (3 Marks)
- (c) Using a circuit diagram describe the operation of a self excited alternator. (6 Marks)