



MACHAKOS UNIVERSITY COLLEGE

(A Constituent College of Kenyatta University)

University Examinations for 2015/2016

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL AND MANUFACTURING ENGINEERING

SECOND SEMESTER EXAMINATION FOR DIPLOMA IN AUTOMOTIVE
ENGINEERING

VEHICLE ELECTRIC AND ELECTRONICS 1

Date: 1/8/2016

Time: 8.30-10.30 AM

INSTRUCTIONS

- This Examination contains two sections A and B.
Section A is compulsory
- Attempt any other Two questions from section B.

SECTION A (COMPULSORY) (30 MARKS)

1. a) Explain how you would carry out the following on the car battery.
 - i. General service (5 marks)
 - ii. Determine the conditions of the electrolyte (5 marks)
 - iii. Using the high rate discharge tester to determine condition of the battery cell (5 marks)
 - iv. Charging the battery using an external charger (5 marks)

- b) Explain a procedure for dismantling, testing and assembling the DC motor
(10 marks)

ANSWER ANY TWO QUESTIONS

2. a) In taking light circuit working off a 12V battery has four lights connected in parallel with the following resistors 60V, 40V, 30V, and 20V. Calculate the total amount of current passing through (6 marks)
- b) Sketch the indicator circuit and explain how current flows (14 marks)
3. a) Name five types of ignition systems. (5 marks)
- b) Using a diagram explain the operation of the conventional ignition system (15 marks)
4. a) Sketch an electrical circuit showing how an ammeter and a voltmeter and connected to measure current and voltage (6 marks)
- b) Sketch the headlamp circuit and explain how current flows through (14 marks)
5. a) By the use of sketches explain the meaning of dwell ample in ignition system (8 marks)
- b) Explain the function of the following as applied in coil ignition system. Vacuum advance, centrifugal advance mechanisms, capacitor, Ballast resistor and induced E.m.f (12 marks)