



MACHAKOS UNIVERSITY

University Examinations 2017/2018

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL AND MANUFACTURING ENGINEERING

SECOND YEAR FIRST SEMESTER EXAMINATION FOR DIPLOMA IN
MECHANICAL ENGINEERING

AUTOELECTRICS I

DATE: 11/12/2017

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

1. a) Briefly explain the functions of a car battery when:-
 - i. The engine is OFF
 - ii. The engine is STARTING
 - iii. The engine is RUNNING (6 marks)
- b) State FOUR classifications of the car Battery (4 marks)
- c) With the aid of a sketch describe how the three phase alternating current is rectified to direct current (10 marks)
- d) Briefly explain the principle of operation the a inertia engagement type of starter motor used in the motor vehicle industry (10 marks)

SECTION B: SELECT ANY TWO QUESTIONS

2. With help of a well labeled diagram, explain the operation of the electronic regulator in the charging system of a motor vehicle (20 marks)
3. Using a well labeled diagram explain the operation of pre-engaged starter motor (20 marks)
4. A vehicle with a faulty coil ignition system is towed in the workshop for repair. Explain the procedure to be followed to make it serviceable (20 marks)
5. Sketch an auxiliary circuit system of a vehicle showing the main items of equipment and fuse rating. (20 marks)