



UNIVERSITI KUALA LUMPUR
MALAYSIA FRANCE INSTITUTE

FINAL EXAMINATION
SEPTEMBER 2014 SEMESTER

SUBJECT CODE : FVB11504
SUBJECT TITLE : AUTOTRONIC
LEVEL : BACHELOR
DURATION : 2.00 PM – 5.00 PM
(3 HOURS)
DATE / TIME : 7 JANUARY 2015

INSTRUCTIONS TO CANDIDATES

1. Please read the instructions given in the question paper **CAREFULLY**.
 2. This question paper is printed on one side of the paper.
 3. Please write your answers in the answers booklet provided.
 4. Answers should be written in blue or black ink except for sketching, graphic and illustration.
 5. This question paper consists of **ONE (1)** section. Answer only four questions.
 6. Answer all questions in English.
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THERE ARE 2 PRINTED PAGES OF QUESTIONS EXCLUDING THIS PAGE

SECTION A (Total: 100 marks)

INSTRUCTION: There are Five (5) questions. Answer Four (4) questions only. Please use the answer booklet provided.

Question 1

The function of the starter motor is to start up the combustion engine. An electric motor forms the basis of the starter motor. This motor drives the starter gear ring via the pinion gear. The rotating movement of the starter motor is created through the interaction of two magnetic fields. There is one component as we know that related to the starter motor which is solenoid. A starter solenoid (or starter relay) is the part of an automobile which switches a large electric current to the starter motor, in response to a small control current, and which in turn sets the engine in motion. Based on this component please explain how to perform test functionality of starter motor solenoid?

(25 marks)

Question 2

- a. List **FIVE (5)** types of exterior lights and explain the usage and operation of each type. (15 marks)
- b. List down **TWO (2)** functions of relay. (4 marks)
- c. Illustrate a simple wiring circuit of lighting (bulb) system that uses relay. (6 marks)

Question 3

An ignition system is a system for igniting a fuel-air mixture. Ignition systems are well known in the field of internal combustion engines such as those used in petrol (gasoline) engines used to power the majority of motor vehicles, but they are also used in many other applications such as in oil-fired and gas-fired boilers, rocket engines, etc. There are many different types of ignition systems. One of these systems is the conventional breaker point type ignition systems. With the aid of a diagram, explain the operation of the conventional ignition system which uses the contact point.

(25 marks)

Question 4

An alternator is an electrical generator that converts mechanical energy to electrical energy in the form of alternating current. For reasons of cost and simplicity, most alternators use a rotating magnetic field with a stationary armature. Occasionally, a linear alternator or a rotating armature with a stationary magnetic field is used. In principle, any AC electrical generator can be called an alternator, but usually the term refers to small rotating machines driven by automotive and other internal combustion engines. Regarding to the alternator component, name and explain with the aid of a diagram the different types of stator winding inside the alternator, and state the differences.

(25 marks)

Question 5

The starting system converts electrical energy from the batteries into mechanical energy to turn the engine over. A malfunction within the starting system will make it difficult to get the engine running. Based on the starting system illustrate and explain in detail the complete wiring circuit of starting system that uses relay.

(25 marks)

END OF QUESTION