



**UNIVERSITI KUALA LUMPUR  
Malaysia France Institute**

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**FINAL EXAMINATION  
JANUARY 2010 SESSION**

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**SUBJECT CODE** : FVD 10303  
**SUBJECT TITLE** : AUTOTRONIC 1  
**LEVEL** : DIPLOMA  
**TIME / DURATION** : 4.00pm – 6.00pm  
( 2 HOURS)  
**DATE** : 5 MAY 2010

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**INSTRUCTIONS TO CANDIDATES**

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1. Please read the instructions given in the question paper CAREFULLY.
2. This question paper is printed on both sides of the paper.
3. Please write your answer on the answer booklet provided.
4. Answer should be written in blue or black ink except for sketching, graphic and illustration.
5. This questions paper consists of TWO (2) sections. Section A and B. Answer ALL questions in section A and B.
6. Answer all questions in English.

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THERE ARE 5 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

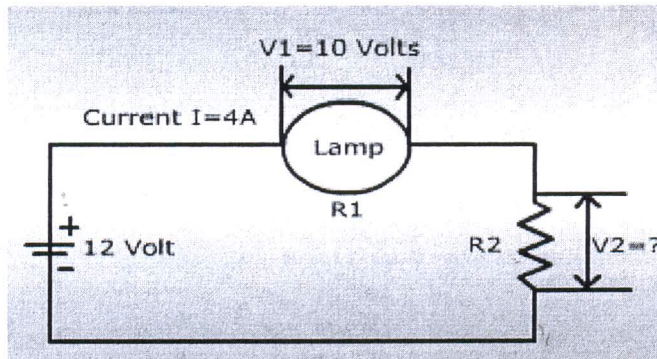
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**SECTION A: (Total: 40 Marks)****INSTRUCTION: Answer ALL questions.****Please use the objective answer sheet provided.**

1. The 3 basic electric circuit problems are:
  - a. Open, closed, grounded
  - b. Short, long, closed
  - c. Short, open, closed
  - d. Short, open, grounded
  
2. All of the following are true about the microprocessor EXCEPT:
  - a. Control information flow
  - b. Follows the instruction in its program
  - c. Performs calculation and makes decisions to quickly solve a problem
  - d. Permanently stores large amounts of data in its memory
  
3. All of the following are true about resistance in a cable EXCEPT:
  - a. Resistance decreases with increasing temperature
  - b. Resistance decreases with larger diameter
  - c. Resistance increases with increasing length
  - d. Resistance increases with increasing temperature
  
4. In an electrical circuit, the common points are the place where:
  - a. Voltage is divided
  - b. Heat is a problem
  - c. Insulation is thicken
  - d. Feed current is divided
  
5. A jumper wire may be used in the following ways EXCEPT:
  - a. To test a battery
  - b. To check for poor grounds
  - c. To supply current directly to the load
  - d. To by-pass a wire or other part of the circuit

6. On the top terminal battery, the negative terminal post is :
  - a. Smaller than the positive terminal post
  - b. The same size as the positive terminal post
  - c. Larger than the positive terminal post
  - d. None of the above
  
7. The battery performs the following EXCEPT:
  - a. Supplies current to crank the engine
  - b. Supplies current when the alternator is not handling the load
  - c. Supplies current to the ignition system with the engine off
  - d. Supplies current to the ECM while the engine is off
  
8. The stationary magnetic field in the starting motor is produced by the...
  - a. Field windings or permanent magnets
  - b. Brushes and commutator
  - c. Armature windings and commutator bars
  - d. Relay or solenoid
  
9. The cause of no output from the alternator could be
  - a. An open diode
  - b. An open field winding
  - c. An open stator winding
  - d. All of the above
  
10. The ignition distributor of contact-point has two major functions:
  - a. To advance and retard the spark
  - b. To distribute the high voltage surges and switch the current to the coil ON and OFF
  - c. To distribute the battery voltage and switch the current to the spark plugs ON and OFF
  - d. To provide centrifugal advance and vacuum advance
  
11. The device that provides spark advance by pushing the breaker cam ahead as engine speed increases is the
  - a. Vacuum-advance mechanism
  - b. Throttle body
  - c. Primary resistance
  - d. Centrifugal-advance mechanism

The question 12 until 14 is based on the diagram below:



12. By referring to the below circuit, how much is R1 (lamp resistance)?
- 1.5Ω
  - 2Ω
  - 2,5Ω
  - 3Ω
13. By referring to the below circuit, how much is V2 (voltage)?
- 1 volt
  - 2 volts
  - 3 volts
  - 4 volts
14. By referring to the below circuit, how much is R2 (resistance)?
- 0.5Ω
  - 2.1Ω
  - 1,5Ω
  - 4.2Ω
15. Engines use resistor-spark plugs to...
- Increase secondary voltage
  - Reduce secondary current
  - Make starting easier
  - Reduce television and radio interference
16. Maximum vacuum advance occurs...
- At part throttle
  - Only after centrifugal advance reaches maximum
  - At closed throttle
  - At wide-open throttle



17. Which of these following are true:

- i. a relay is used to control a small amount of current with a larger of current.
- ii. a relay is used to prevent voltage drop
- iii. a relay is used to create a voltage drop in a control circuit
- iv. a relay is a rectifier

- a. i and ii
- b. I and iii
- c. li and iii
- d. li and iv

18. The heat range of a spark plug is primarily determined by...

- a. The depth the electrodes enter the combustion chamber
- b. The length of the lower insulator
- c. The number or ribs on the upper insulator
- d. The gap between the electrodes

19. The headlamp switch controls the vehicle ...

- a. Interior lights, exterior lights, and headlamps
- b. Turn signals, dome light, and courtesy lights
- c. Brake lights, backup light and hazards-warning lights
- d. All of the above

20. The customer complaint that the windshield wiper stop when the ignition key is turn OFF, this happen due to...

- i. the time-delay is improper adjuster
- ii. the wiper motor is wired to the ignition switch and this is normal operation
- iii. no current supply when OFF ignition switch
- iv. intermittent windshield wiper damaged

- a. I and ii
- b. I and iii
- c. li and iii
- d. li and iv

**SECTION B (Total: 60 Marks)****INSTRUCTION: Answer ALL questions.****Please use the answer booklet provided.****QUESTION 1**

- a. Explain how do you check the alternator if you don't have the tester.  
(5 marks)
  
- b. What are the consequences of testing the alternator without using the proper tools?  
(5 marks)
  
- c. Explain the advantage and disadvantage of doing shortcut.  
(5 marks)

**QUESTION 2**

Name and explain with the aid of a diagram the different types of stator winding inside the alternator, and state the differences.

(15 marks)

**QUESTION 3**

Name and explain how are you going to test the functionality of starter motor solenoid?

(20 marks)

**QUESTION 4**

Draw the wiring circuit of starting system with used relay.

(10 marks)

**END OF QUESTION**