



**UNIVERSITI KUALA LUMPUR
Malaysia France Institute**

**FINAL EXAMINATION
JANUARY 2011 SESSION**

SUBJECT CODE : FVD 20003/FVD 12503
SUBJECT TITLE : AUTOTRONIC 2
LEVEL : DIPLOMA
TIME / DURATION : 3.30pm – 6.00pm
(2.5 HOURS)
DATE : 12 MAY 2011

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 on the answer booklet provided.
4. Answer should be written in blue or black ink except for sketching, graphic and illustration.
5. This question paper consists of **TWO (2)** sections. Section A and section B. Answer all question.
6. Answer should be in English.

THERE ARE 6 PAGES OF QUESTIONS, INCLUDING THIS PAGE.

SECTION A (Total: 20 marks)**INSTRUCTION: Answer ALL questions.****Please use the answer booklet provided.**

1. Electronic ignition works by means of a ...
 - a. Pickup coil triggering a module
 - b. Module triggering an ignition coil
 - c. Pickup coil triggering an ignition coil

2. Distributorless ignition systems...
 - a. Fire two cylinder at the same time
 - b. Fire paired cylinder
 - c. Use the computer to control the ignition timing

3. Ignition timing that is too far advanced can cause...
 - a. Poor performance
 - b. Reduced fuel economy
 - c. Pinging on acceleration

4. In general, when must the spark occur in the piston cycle to ignite the air fuel mixture properly?
 - a. Near the end of the compression stroke
 - b. After the compression stroke
 - c. After the power stroke

5. The function of the contact breaker in the transistorized ignition Breaker Triggered System is:
 - a. To switch control current on and off
 - b. To switch primary current on and off
 - c. To amplify primary current

6. Ignition timing that is too far retarded can cause...
 - a. Pinging on acceleration
 - b. Possible slow, jerky cranking
 - c. A long cranking period before starting

7. Which type of Transistorized Ignition System that produce alternating current (AC) signals
 - a. Transistorized Ignition System Hall-Effect (TI-H)
 - b. Transistorized Ignition System Induction Type (TI-I)
 - c. Transistorized Ignition System Breaker Triggered (TI-B)

8. What takes the place of the distributor in a distributorless ignition system?
 - a. Pickup coils
 - b. Multiple coils
 - c. Standard ignition coils

9. What are the advantages of using a semiconductor ignition system?
 - a. It is impossible to implement knock control
 - b. Extended operating-data acquisition
 - c. It is impossible to include other control parameters

10. How is the engine speed sensor sense the engine speed?
 - a. An induction type pulse generator scans the teeth of a special purpose gear
 - b. The resulting change in magnetic flux induces a DC voltage evaluated by control unit
 - c. The gear wheel has a gap which is sensed by the induction pulse generator

11. Which is not true about Multiplexing
 - a. Control Area Network (CAN)
 - b. Vehicle Area Network (VAN)
 - c. Multiplexing Area Network (MAN)

12. Electronic spark advance map was develop to accurately control:
 - a. The ignition timing only
 - b. Dwell time and ignition timing only
 - c. The coil primary current, ignition timing and dwell time.

13. What is the heat range code number for cold spark plug?
 - a. No 3
 - b. No 5
 - c. No 8

14. All the output signal from each of the sensor below have to convert from analog to digital except:
- Intake manifold pressure sensor
 - Engine temperature sensor
 - Engine speed and reference mark sensor
15. What are the advantages of the Breaker Triggered Transistorized Ignition over the Breaker Triggered Coil Ignition system?
- Decrease in the primary current
 - Spark advance can be matched better to the individual and diverse requirement made of the engine
 - Consider as longer service life of the contact
16. What is meant by 'knocking'?
- Temperature of an air fuel mixture is raised high enough and ignition occur by spark plug
 - Self ignition occurs when fuel is injected into the combustion chamber
 - The particles on the piston ignite the air fuel mixture in the combustion chamber
17. Which of the statement below is true
- The primary circuit of the ignition coil is switched by means of a power input stage in the electronic control unit
 - Signal processing is carried out in the microcomputer which comprises the microprocessor with quartz oscillator crystal for clock pulse generation
 - The microcomputer contain all data, including the ignition maps, in addition to the programs for detecting the input variables and for computing the output variables
18. In the Transistorized Ignition System with Induction Type pulse Generator (TI-I), the primary circuit is broken when:
- The rotor teeth and the stator teeth are in line
 - The magnetic flux in the air gap is at its maximum
 - The magnetic flux in the air gap is at its minimum

19. In the semiconductor Ignition System, the engine speed sensing is done by the signal tapped off from:
- a. Ignition distributor equipped with a hall ignition vane switch
 - b. Throttle valve switch
 - c. Pressure sensor
20. In the transistorized ignition system with hall generator, the dwell angle is determined by the
- a. Shape of the rotor in the ignition distributor
 - b. Gap between close vane and permanent magnet
 - c. Gap between permanent magnet and the IC hall

SECTION B: (80 MARKS)

INSTRUCTION: Answer all questions.

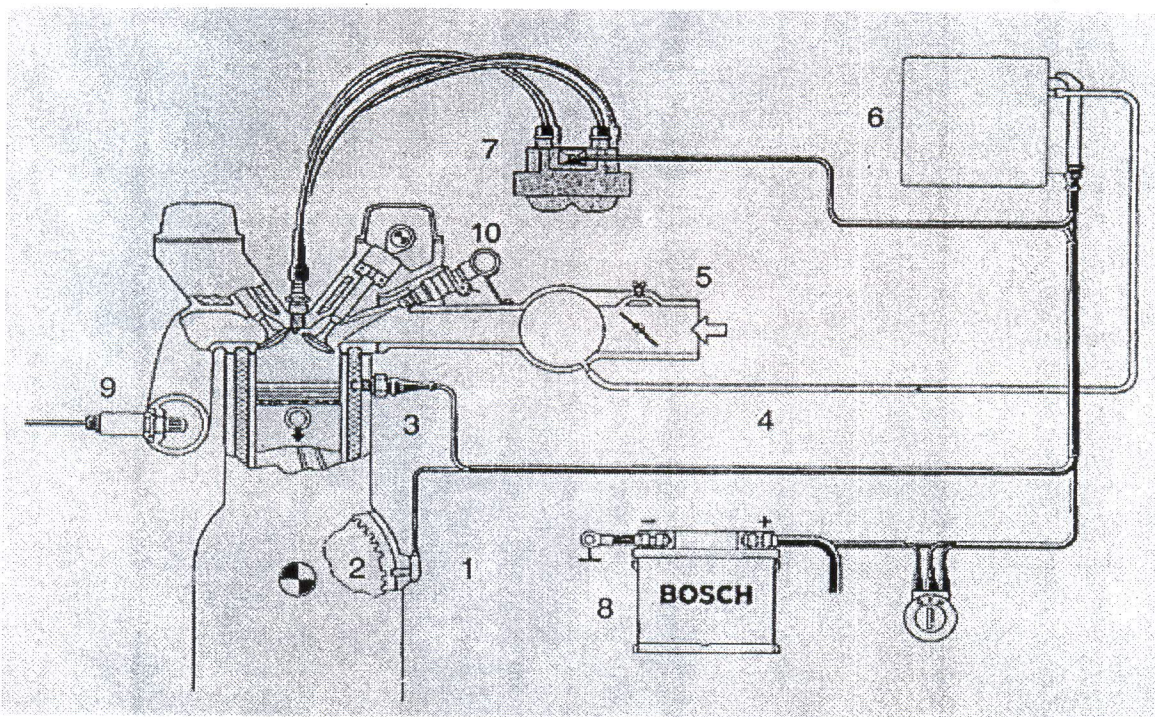
Please use the answer booklet provided.

Question 1

a. You are given Fully Electronic Ignition System diagram bellow

Name all the components (1 - 10) with the function of each component

(10 marks)



b. List down types of the entire sensor according to their group pf sensors and write down the signal type output for each sensor.

(10 marks)

Question 2

- a. Explain when the sparks are generated.

(10 marks)

- b. What are the advantages of using double-spark ignition coils instead of single spark ignition coil ?

(10 marks)

Question 3

- a. Explain the operational of conventional system and list down its component with an aid of a simple wiring diagram.

(10 marks)

- b. Draw a complete circuit diagram with 5 listed components of Transistorized Ignition Hall-effect System (TI-H).

(10 marks)

Question 4

- a. Give 5 advantages of Transistorized Ignition Hall-effect system compared to the conventional! ignition system?

(10 marks)

- b. Name two type of network in the Multiplexing system and list down the component that control each type of networks.

(10 marks)

END OF QUESTION