



UNIVERSITI KUALA LUMPUR
MALAYSIA FRANCE INSTITUTE

FINAL EXAMINATION
JULY 2010 SEMESTER

SUBJECT CODE : FVB 10403
SUBJECT TITLE : ENGINE FUNDAMENTAL
LEVEL : BACHELOR
DURATION : 3.00pm – 6.00pm
(3 HOURS)
DATE / TIME : 19 NOVEMBER 2010

INSTRUCTIONS TO CANDIDATES

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 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 B. Answer all questions in Section A and B
6. Answer all questions in English.

THERE ARE 4 PRINTED PAGES OF QUESTIONS.

SECTION A (Total: 40 marks)**INSTRUCTION: Answer ALL questions.****Please use the answer booklet provided.**

1. The two basic types of internal-combustion engines are the
 - a. piston and reciprocating
 - b. reciprocating and rotary
 - c. reciprocating and pushrod
 - d. rotary and spark-ignition

2. The two basic types of piston engines are the
 - a. rotary and reciprocating
 - b. pushrod and reciprocating
 - c. spark-ignition and compression-ignition
 - d. gasoline and gasohol

3. Mechanic A says that, in the engine, the air temperature increases with increasing pressure. Mechanic B says that pressure increases with temperature. Who is right?
 - a. mechanic A
 - b. mechanic B
 - c. both A and B
 - d. neither A nor B

4. Engine power is produced by the
 - a. rotation of the crankshaft
 - b. combustion pressures pushing on pistons
 - c. up-and-down movement of pistons
 - d. valve action

5. Two kinds of piston rings are
 - a. compression and oil-control rings
 - b. sliding-seal, and \ compression rings
 - c. oil-scraper and oil-control rings
 - d. pressure and sealing rings

6. Three basic cylinder arrangements for automotive engines are
 - a. flat, radial, and V
 - b. in a row, in line, and opposed
 - c. in line, V, and opposed
 - d. V, double row, and opposed

7. A power from a small engine can be increased without increasing engine weight by
 - a. making cylinders larger
 - b. turbocharging
 - c. increasing piston stroke
 - d. adding more cylinders

8. Compared to an engine with the camshaft in the block, the overhead-camshaft engine has
 - a. more parts
 - b. fewer parts
 - c. lower rpm
 - d. none of the above

9. When the piston is at TDC, the volume above the piston in the combustion chamber is the
 - a. clearance volume
 - b. compression ratio
 - c. volumetric efficiency
 - d. none of the above

10. In the multiple-displacement V-8 engine, electronic controls can cut out
 - a. one, two, three, or four cylinders
 - b. two, three, or four cylinders
 - c. two or four cylinders
 - d. all the cylinders

11. The basic part of the engine in which everything else is attached to or assembled into, is the
 - a. cylinder head
 - b. crankshaft
 - c. cylinder block
 - d. oil pan

12. Mechanic A says many engines have the camshaft in the block. Mechanic B says many engines have the camshaft on the head. Who is right?
 - a. mechanic A
 - b. mechanic B
 - c. neither A nor B
 - d. both A and B

13. The purpose of the core clean-out holes is to permit removal of the cores that formed the
 - a. cylinder bores
 - b. water jackets
 - c. holes for the freeze plugs
 - d. valve guides

14. The major difference between the spark-ignition and the diesel-engine cylinder blocks is that the
 - a. spark-ignition block is more complicated
 - b. spark-ignition block is heavier and stronger
 - c. diesel block is heavier and stronger
 - d. diesel block is more complicated

15. A short block includes the
 - a. cylinder block
 - b. crankshaft
 - c. pistons and rods
 - d. all of the above

16. Two basic types of valve trains are
- camshaft in cylinder head and camshaft above cylinder head
 - I head and L head
 - camshaft on head and camshaft in block
 - I head and overhead valve
17. The pushrod valve train has five basic parts, which include cam,
- lifter, pushrod, rocker arm, and valve spring
 - bucket tappet, adjustment screw, spring, and valve spring
 - lifter, pedestal, adjustment screw, and valve spring
 - lifter, pushrod, hydraulic adjuster, and valve spring
18. The camshaft is driven either by sprockets and chain toothed belt, or
- the distributor shaft
 - an oil-pump gear
 - timing gears
 - timing belt
19. The purpose of the gear on some camshafts is to
- drive the gear train
 - time the gears
 - drive the fan belt
 - drive the distributor and oil pump
20. Mechanic A says that all OHC engines use rocker arms. Mechanic B says some use bucket tappets and no rocker arms. Who is right?
- mechanic A
 - mechanic B
 - both A and B
 - neither A nor B

(SECTION A) continued**SHORT ANSWER : (20 marks)****INSTRUCTION: Answer All The Question****Please use the answer booklet provided.**

21. What is the main function of contact breaker point? (4 marks)
22. What is the winding ratio between primary winding and secondary winding? (4 marks)
23. Give **FIVE (5)** component of primary circuit. (4 marks)
24. Give **FOUR (4)** components of secondary circuit. (4 marks)
25. What is the function of ignition coil? (4 marks)

SECTION B (Total: 60 marks)**INSTRUCTION : Answer All The Question****Please use the answer booklet provided.****Question 1**

Draw a functional diagram for conventional ignition system and name all the major parts. (20 marks)

Question 2

With the aid of a diagram that you draw at Question 1, explain the operation of this conventional ignition system. (20 marks)

Question 3

What is the function of condenser and its contribution on ignition system? (20 marks)

END OF QUESTION