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10ME844

Eighth Semester B.E. Degree Examination, Dec.2016/Jan.2017
Automotive Engineering

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions, selecting
atleast TWO questions from each part.**

PART – A

- 1 a. List out the spark ignition and compression ignition engines components and mention its functions. (10 Marks)
- b. What is air swirl? What are the methods of swirl generation in compression ignition engine? (06 Marks)
- c. Explain the splash lubrication, with a neat sketch. (04 Marks)
- 2 a. What is octane and Cetane ratings for petrol and diesel fuel? (04 Marks)
- b. Explain the construction and working principle of zenith carburetor with neat sketch. (10 Marks)
- c. Explain the working principle of electrical fuel pump with neat sketch. (06 Marks)
- 3 a. What do you understand by the term supercharging and turbocharging? (04 Marks)
- b. Explain the centrifugal type and Root's supercharger with neat sketch. (10 Marks)
- c. Explain any three methods of turbocharging. (06 Marks)
- 4 a. List out the different types of ignition system. Explain the construction and working principle of electronic ignition system. (10 Marks)
- b. Draw neat circuit diagram of battery ignition system and explain the functions of various components in the system. (10 Marks)

PART – B

- 5 a. Explain the construction and working principle of multi plate clutch. (10 Marks)
- b. Explain with diagram the working of constant mesh gear box and mention its advantages over sliding mesh gear box. (10 Marks)
- 6 a. What is the function of differential? Explain its operating principle with neat diagram. (10 Marks)
- b. Define the following terms : i) camber ii) castor iii) king pin inclination iv) toe in and toe out v) included angle. (10 Marks)
- 7 a. Explain the working principle of the telescopic type shock absorber with a neat sketch. (09 Marks)
- b. Explain the working of hydraulic braking system with neat diagram. (08 Marks)
- c. Draw the layout of air brake system. (03 Marks)
- 8 a. Explain the working principle of exhaust gas recirculation (EGR) system with neat diagram. (10 Marks)
List out the methods of controlling the engine emission.
- b. What is catalytic converter? How they are helpful in reducing exhaust gas emission? Explain with neat sketch the 3-way catalytic converter system. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg, 42+8 = 50, will be treated as malpractice.