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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. List out the methods of controlling the engine emission. (10 Marks)
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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1. Any revealing of identification, appeal to evaluator and /or equations written eg. 42-8 = 50, will be treated as malpractice.