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10ME844

Eighth Semester B.E. Degree Examination, June/July 2015
Automotive Engineering

Time: 3 hrs.

Max. Marks: 100

Note: Answer FIVE full questions, selecting at least TWO questions from each part.

PART – A

- 1 a. Explain the various methods of cylinder arrangements in multicylinder engines. (08 Marks)
b. What do you mean by Swirl generation in CI engines? What are the different methods of Swirl generation? (06 Marks)
c. What are the various methods of engine cooling? Explain with sketch the thermosyphon system of cooling. (06 Marks)
- 2 a. Explain with a neat sketch normal and abnormal combustion in SI engines. (06 Marks)
b. Sketch and explain Zenith carburetor. (10 Marks)
c. What are the octane and cetane numbers? (04 Marks)
- 3 a. What are the objectives of super charging and explain any two arrangements of supercharging. (10 Marks)
b. What is the need of turbocharging? Explain any one method of turbo charging giving its merits and demerits. (10 Marks)
- 4 a. What are the requirements of ignition system? Sketch and explain battery ignition system. (10 Marks)
b. What do you mean by ignition advance? Explain the following ignition advance methods:
i) Centrifugal advance, ii) Vacuum advance. (10 Marks)

PART – B

- 5 a. Classify clutches (detailed classification). With neat sketch, explain working principle of friction clutches. (06 Marks)
b. Explain necessity for gear ratios in transmission. (06 Marks)
c. Explain working principle of automatic transmission. (08 Marks)
- 6 a. With a neat sketch, explain the torque tube drive. What are its merits over Hotch-Kiss drive? (08 Marks)
b. Define the following and explain their effect on steering:
i) Camber ii) King pin inclination
iii) Castor iv) Toe in and Toe out (12 Marks)
- 7 a. What are the requirements of a suspension system? Explain air suspension system with sketch. (08 Marks)
b. Explain with a neat sketch working of master cylinder. (08 Marks)
c. Differentiate between disc brakes and drum brakes. (04 Marks)
- 8 a. Explain the controlling of crank case emissions, with sketch. (08 Marks)
b. What are the methods used to reduce amount of pollutants in the exhaust gas? With neat sketch, explain exuast gas recirculation system. (08 Marks)
c. What are catalytic converters? How they are helpful in reducing HC, CO and NO_x emissions. (04 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.