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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, (10 Marks)
 - 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.