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10ME844

Eighth Semester B.E. Degree Examination, Dec.2017/Jan.2018
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. Draw the valve time diagram for a 4 – stroke Spark Ignition (SI) engine and explain. (06 Marks)
b. Why cooling is necessary for I.C engines? Explain thermo siphon cooling with neat sketch. (07 Marks)
c. What is Swirl? Explain the different methods of Swirl generation. (07 Marks)
- 2 a. With neat sketch, explain the normal and abnormal combustion in SI engines. (06 Marks)
b. What are the main functions of carburetor? With neat sketch, explain Zenith carburetor. (07 Marks)
c. What do you mean by Cetane and Octane numbers? (04 Marks)
d. Explain briefly the alternate fuels for IC engines. (03 Marks)
- 3 a. Distinguish between Supercharging and Turbocharging. (06 Marks)
b. With neat sketch, explain any one type of supercharger. (07 Marks)
c. With neat sketch, explain the construction and operation of Turbocharger. (07 Marks)
- 4 a. Name the different types of Ignition systems. With neat sketch, explain Battery Ignition system. (08 Marks)
b. With neat circuit diagram, explain the principles of Electronic Ignition system. (07 Marks)
c. What do you mean by Ignition advance? List and explain any two factors affecting ignition advance. (05 Marks)

PART – B

- 5 a. Explain the working principle of Automatic transmission. (06 Marks)
b. With the neat sketch, explain the working of constant mesh gear box. (06 Marks)
c. With neat sketch, explain the working principle of Single plate and Multi plate clutches. (08 Marks)
- 6 a. Write a short note on Propeller shaft. (04 Marks)
b. With neat sketches, explain the Hotchkiss and Torque tube drives. (10 Marks)
c. Explain briefly the working of Power steering. (06 Marks)
- 7 a. What are the requirements of suspension system? With neat sketch, explain the working of leaf spring. (07 Marks)
b. Differentiate between disc brakes and drum brakes. (06 Marks)
c. Explain the purpose and operation of Antilock braking system. (07 Marks)
- 8 a. With the relevant sketch, explain the working of Exhaust Gas Recirculation [EGR]. (07 Marks)
b. Write short notes on Euro – II and Euro – III norms. (05 Marks)
c. Write short notes on :
i) Catalytic converter ii) Controlling crank case emissions. (08 Marks)

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.