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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.