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10ME844

**Eighth Semester B.E. Degree Examination, Jan./Feb. 2021**  
**Automotive Engineering**

Time: 3 hrs.

Max. Marks:100

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

**PART – A**

- 1 a. What are the functions of compression and oil control rings in piston? (04 Marks)
- b. Explain with neat diagram any two types of combustion chambers used in C.I. Engines. (08 Marks)
- c. Explain with diagram the working of
  - i) Wax type thermostat valve and
  - ii) Bellow type thermostat valve used cooling system. (08 Marks)
- 2 a. Explain the fuel mixture requirements for S.I Engines in various transient conditions. (06 Marks)
- b. List various alternate fuels used in I.C Engines and brief about any one. (06 Marks)
- c. Explain with neat diagram working of electrical fuel feed pump used in petrol engines. (08 Marks)
- 3 a. What are the advantages and disadvantages of super charging? (06 Marks)
- b. Write any four differences between mechanical supercharging and turbo charging. (04 Marks)
- c. Explain with schematic diagram the working of any two types of super charging methods. (10 Marks)
- 4 a. Differentiate between battery and magneto coil ignition system. (04 Marks)
- b. With neat sketch, explain the working of battery coil ignition system. (08 Marks)
- c. With neat sketch, explain the working of centrifugal advance. (08 Marks)

**PART – B**

- 5 a. What are the requirements of a clutch? (03 Marks)
- b. With neat sketch explain the working principle of fluid coupling. (08 Marks)
- c. Determine the dimensions of a clutch plate transmitting a 40kW at 4000rpm. The inner diameter of the clutch plate is 0.6 times its outer diameter. The pressure intensity on the plate should not exceed 75KPa Co-efficient of friction of clutch plate material is  $\mu = 0.3$ . The design torque is 30% more than the engine torque to accommodate clutch face wear for avoiding the slip. (09 Marks)
- 6 a. What are the forces and torque coming rear axle? (04 Marks)
- b. Define the following with sketch and explain their effect on steering
  - i) Camber
  - ii) King pin angle
  - iii) Included angle and scrub radius
  - iv) Castor. (16 Marks)
- 7 a. Explain the air suspension system with neat layout diagram. (08 Marks)
- b. Draw the layout of hydraulic braking system and explain various components. (12 Marks)
- 8 a. Explain with diagram positive crank case ventilation system. (07 Marks)
- b. Explain with diagram the exhaust gas recirculation system. (07 Marks)
- c. Explain in brief about catalytic convertor. (06 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.