



10ME844

**Eighth Semester B.E. Degree Examination, Aug./Sept.2020**  
**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. Explain with sketch various methods of cylinder arrangements used in multicylinder engines. (08 Marks)  
b. What are the various methods of engine cooling? Explain with sketch the thermosyphon system of cooling. (06 Marks)  
c. What are the functions of piston rings? Explain briefly. (06 Marks)
- 2 a. What is meant by carburetion? What are the functions of carburetor? (06 Marks)  
b. What are the main components of a Fuel Supply System? Explain any two in both SI and CI engines. (08 Marks)  
c. Draw a neat sketch of mechanical fuel pump and explain its working. (06 Marks)
- 3 a. What is the necessity of super-charging? Explain briefly. (06 Marks)  
b. Explain the different types of super-chargers. (08 Marks)  
c. Compare Mechanical Super Charging and Turbo-Charging. (06 Marks)
- 4 a. Explain with a neat sketch, working of a battery ignition system. (08 Marks)  
b. What are the advantages of using an electronic ignition system? (06 Marks)  
c. Compare battery and magneto ignition system. (06 Marks)

**PART - B**

- 5 a. Explain principles of automotive transmission. (06 Marks)  
b. Explain the working principle of clutch and with neat sketch, explain centrifugal clutch. (08 Marks)  
c. Determine the dimensions of a clutch plate developing 40 K Watts at 4000 rpm. The inner diameter of the clutch plate is 0.6 times its outer diameter and it is to be ensured that even after a loss of 30% of the engine torque developed due to clutch facing wear, it should not slip. The pressure intensity should not exceed 75 kPa. Take  $\mu = 0.3$ . (06 Marks)
- 6 a. Explain with neat sketch: (i) Hotchkiss drive (ii) Torque tube drive (08 Marks)  
b. Explain the working of power steering with a sketch. What are the advantages and disadvantages over manual steering? (06 Marks)  
c. Write a short note on different types of Chassis Frame. (06 Marks)
- 7 a. What are the requirements of good suspension system? (06 Marks)  
b. What are the merits and demerits of hydraulic brakes over mechanical brakes? (06 Marks)  
c. Sketch and explain the two types of dual braking system. (08 Marks)
- 8 a. By what methods the emissions of pollutants in automobiles can be reduced? Explain briefly. (06 Marks)  
b. Write a note on alternative fuels for automotive engines. (04 Marks)  
c. Explain emissions standard which are followed in India. (05 Marks)  
d. Explain the working of Automotive Exhaust Gas Recirculation System EGR). (05 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.

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