

CBCS SCHEME

18ME752

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Seventh Semester B.E. Degree Examination, June/July 2023 Automotive Engineering

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Mention the different cylinder arrangements of an IC engine and discuss their merits and demerits. (08 Marks)
- b. Differentiate between dry and wet liners in automobile engines. (06 Marks)
- c. Enumerate the importance of electric cars in today's scenario. (06 Marks)

OR

- 2 a. Sketch and explain:
 - (i) Thermosyphon system for engine cooling (12 Marks)
 - (ii) Bellows type thermostat (08 Marks)
- b. With a sketch illustrate the working of splash lubrication system. (08 Marks)

Module-2

- 3 a. Describe the working of a centrifugal clutch. (06 Marks)
- b. Explain the operation of a synchromesh gear box. (06 Marks)
- c. With a neat sketch explain Hotchkiss drive. (08 Marks)

OR

- 4 a. Describe the construction and operation of a Master Cylinder. (08 Marks)
- b. Mention the use of Universal joints and differential in an automobile transmission system. (08 Marks)
- c. Enumerate the advantages of Antilock Braking System (ABS). (04 Marks)

Module-3

- 5 a. Define the following:
 - (i) Toe in and Toe out (08 Marks)
 - (ii) Camber and Castor angle (04 Marks)
- b. Explain Torsion bar suspension system. (08 Marks)
- c. Illustrate with sketch the battery coil ignition system. (08 Marks)

OR

- 6 a. Sketch and explain power steering system. (08 Marks)
- b. Explain the following types of automatic ignition advance mechanisms:
 - (i) Centrifugal advance (12 Marks)
 - (ii) Vacuum advance (08 Marks)

Module-4

- 7 a. Distinguish between supercharging and turbocharging. (06 Marks)
- b. Discuss normal and abnormal combustion in SI engines. (06 Marks)
- c. Illustrate with sketch the working of Solex carburetor. (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.

OR

- 8 a. What are OCTANE and CETANE rating of IC engines? (04 Marks)
b. Explain the principle of Multi Point Fuel Injection System (MPFI) in engines. (08 Marks)
c. Discuss the various methods of supercharging of IC engines. (08 Marks)

Module-5

- 9 a. Illustrate with sketch the positive crankcase ventilation system. (07 Marks)
b. Describe the Exhaust Gas Recirculation (EGR) system. (08 Marks)
c. Explain the need for treating exhaust gases and mention the Government's initiatives taken to reduce emission. (05 Marks)

OR

- 10 a. Discuss the mechanism used in catalytic converters and mention its advantages. (08 Marks)
b. Explain air-injection system for treating the exhaust gases. (08 Marks)
c. Mention the importance of emission norms in today's scenario. (04 Marks)
