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**Eighth Semester B.E. Degree Examination, Jan./Feb. 2023**  
**Automotive Engineering**

Time: 3 hrs.

Max. Marks:100

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

**PART – A**

- 1 a. Write the material and method of construction of the following IC Engine parts:
  - i) Cylinder block
  - ii) Piston
  - iii) Connecting rod
  - iv) Crank shaft. (04 Marks)
- b. Sketch dry and wet liners and differentiate them. (08 Marks)
- c. Explain with sketch pressure feed lubrication system. (08 Marks)
- 2 a. Briefly explain some of the alternative fuels that can be used for IC Engines. (04 Marks)
- b. Describe the working of various circuits of a Solex carburetor with sketch. (08 Marks)
- c. With sketch, explain electronic fuel injection system for SI Engines. (08 Marks)
- 3 a. Explain the purpose of supercharging. (04 Marks)
- b. With a neat sketch, explain any two types of supercharger. (08 Marks)
- c. Explain with sketch working of a turbocharger. (08 Marks)
- 4 a. What are the requirements of ignition system? Write the types of ignition systems. (04 Marks)
- b. Differentiate between Magneto ignition system and battery ignition system. (04 Marks)
- c. Explain with neat sketch construction and working of electronic ignition system. State the advantages of this system. (12 Marks)

**PART – B**

- 5 a. State the functions of a clutch. Name the types of clutches used in automobiles. (04 Marks)
- b. Sketch and explain the construction and working of a single plate clutch. (08 Marks)
- c. Explain with sketch working of a torque converter device. Mention their advantages. (08 Marks)
- 6 a. Describe Hotchkiss and torque tube drive with sketch. (04 Marks)
- b. Define and explain the following terms with sketch:
  - i) Camber angle
  - ii) Castor angle
  - iii) King pin inclination
  - iv) Included angle. (08 Marks)
- c. Explain the working of differential unit with neat diagram. (08 Marks)
- 7 a. Mention the purpose of suspension system. (04 Marks)
- b. Explain air suspension system with sketch. (08 Marks)
- c. Explain with neat sketch, working of a master cylinder of a hydraulic braking system. (08 Marks)
- 8 a. Briefly explain the different types of Emissions from IC Engines. (06 Marks)
- b. Write the various methods used to control NO<sub>x</sub> emissions, with sketch explain EGR method. (08 Marks)
- c. Write a note on Bharat stage II and III emission norms. (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.