

# CBCS SCHEME

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## Fourth Semester B.E. Degree Examination, Feb./Mar. 2022 Automotive Engines

Time: 3 hrs.

Max. Marks: 100

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

### Module-1

- 1 a. Discuss the constructional details and working principle of four stroke Compression Ignition (CI) engine with a neat sketch. (10 Marks)
- b. Write the comparison between :
- i) Two stroke and Four stroke Engine
- ii) Diesel and Petrol Engine (10 Marks)

OR

- 2 a. Explain Four stroke spark ignition engines with a valve Timing diagram. (10 Marks)
- b. Write short notes on :
- i) Theoretical Otto cycle
- ii) Theoretical Diesel cycle. (10 Marks)

### Module-2

- 3 a. List the components of Engine. Explain any four components with a suitable sketch. (10 Marks)
- b. Discuss the Air fuel ratio requirements in spark ignition engines. (05 Marks)
- c. Write short notes on Gasoline Injection system. (05 Marks)

OR

- 4 a. Explain the working of fixed type simple venturi carburetor with a neat sketch. List its limitations. (10 Marks)
- b. What are the different types of Nozzles used in fuel systems? Explain any three with a neat sketch. (10 Marks)

### Module-3

- 5 a. List the Necessity of cooling. Explain the construction and working of pressurized water cooling with a neat sketch. (10 Marks)
- b. What do you mean by Antifreeze solutions? Explain different types of coolant. (10 Marks)

OR

- 6 a. Discuss any one lubricating systems with suitable sketch. State its advantages. (10 Marks)
- b. What do you understand by Crank case ventilation? Explain positive crank case type with a neat sketch. (10 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.

**Module-4**

- 7 a. Define Supercharging. Discuss the different methods of supercharging with a neat sketch. (10 Marks)  
b. List the limitations of supercharging for petrol diesel engines. (10 Marks)

**OR**

- 8 a. With a neat schematic diagram, explain the construction and working principle of Turbocharger, with intercooler. (10 Marks)  
b. Write short notes on the effect of performance by Turbocharger. (10 Marks)

**Module-5**

- 9 a. Explain the working principle of two stroke spark Ignition engine with symmetrical port timing diagrams. (10 Marks)  
b. Write short notes on :  
i) Scavenging process  
ii) Preblow down and Blow down. (10 Marks)

**OR**

- 10 a. List the different types of scavenging systems. Explain them with necessary sketches. (10 Marks)  
b. Write short notes on :  
i) Port Design  
ii) Scavenging pumps. (10 Marks)

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