

# CBCS SCHEME

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## Fourth Semester B.E. Degree Examination, Dec.2023/Jan.2024 Automotive Engine

Time: 3 hrs.

Max. Marks: 100

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

### Module-1

- 1 a. Explain the working principle of a 4-stroke SI engine with suitable sketches. (10 Marks)  
b. With the IC engine classification. (10 Marks)

**OR**

- 2 a. Draw an actual value timing diagram for low speed 4-stroke SI engine. Explain in brief. (10 Marks)  
b. Derive an expression for thermal efficiency of the diesel cycle. (10 Marks)

### Module-2

- 3 a. With the help of a neat sketch, explain construction and working of simple carburetor. (10 Marks)  
b. Explain with neat sketch, i) Pintle nozzle ii) Pintaux nozzle (10 Marks)

**OR**

- 4 a. Sketch and explain the Common Rail Diesel Injection (CRDI) system and also list the merits and demerits. (10 Marks)  
b. What is governor? Explain the construction and working of pneumatic governor. (10 Marks)

### Module-3

- 5 a. Classify the types of cooling system and explain forced fuel cooling system with neat sketch. (10 Marks)  
b. Write the comparison between air cooling and water cooling system. (10 Marks)

**OR**

- 6 a. What do you mean by lubrication? Explain the necessity of lubrication. (10 Marks)  
b. With a neat sketch, explain splash lubrication system. (10 Marks)

### Module-4

- 7 a. Explain the effect of super charging on performance of the engine. (10 Marks)  
b. Explain two stage turbo charging with neat sketch. (10 Marks)

**OR**

- 8 a. Explain with neat sketch, construction and working of turbo charging with inter cooler. (10 Marks)  
b. Name the methods of super charging and explain any one. (10 Marks)

### Module-5

- 9 a. With a neat sketches, explain the construction and working of 2-stroke SI engine. (10 Marks)  
b. With a neat diagram, explain port timing diagram of 2-stroke SI engine. (10 Marks)

**OR**

- 10 a. Write the comparison between 2-stroke SI and CI engine. (10 Marks)  
b. Explain the following scavenging process i) Pre blow down ii) Blow down. (10 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.