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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)