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Fourth Semester B.E. Degree Examination, Dec.2024/Jan.2025 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. Compare between SI and CI engines. (10 Marks)
- b. Explain the construction and working of four stroke SI engine. (10 Marks)

OR

- 2 a. Explain the actual and theoretical valve timing diagram for petrol engine. (10 Marks)
- b. With the help of P-V and T-S diagram derive an expression for efficiency of otto cycle. (10 Marks)

Module-2

- 3 a. Sketch and explain the parts of piston. (10 Marks)
- b. Sketch and explain valve operating mechanism. (10 Marks)

OR

- 4 a. Describe the different types of nozzles with a schematic diagram. (10 Marks)
- b. What do you mean by governor? Explain its need and also explain any two types of governor. (10 Marks)

Module-3

- 5 a. Explain the necessity of cooling system. Also explain the following: (10 Marks)
i) Air cooling ii) Water cooling.
- b. Describe the crank case ventilation types. (10 Marks)

OR

- 6 a. Compare air and water cooling systems. (10 Marks)
- b. Write a note on following: (10 Marks)
i) Lubrication of piston rings
ii) Lubricity improvers and additives.

Module-4

- 7 a. Mention the advantages and limitations of supercharging. (10 Marks)
- b. Differentiate between supercharger and turbocharger. (10 Marks)

OR

- 8 a. Explain the methods of supercharging. (10 Marks)
- b. Describe the effect of supercharging and Turbo charging on engines performance. (10 Marks)

Module-5

- 9 a. Compare different scavenging systems. (10 Marks)
- b. Explain the working principle of two stroke SI engine with neat sketch. (10 Marks)

OR

- 10 a. Explain the following:
- i) Cross flow and loop flow scavenging system (10 Marks)
 - ii) Scavenging pumps. (10 Marks)
- b. Describe the theoretical scavenging processes also explain various scavenging parameters. (10 Marks)

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