

CBCS SCHEME

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Fourth Semester B.E. Degree Examination, June/July 2024 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. Explain with suitable sketches working of a four stroke spark ignition engine. (10 Marks)
b. Compare spark ignition engine with compression ignition engine. (10 Marks)

OR

- 2 a. Draw actual valve timing diagram of two stroke engine. Explain in brief. (10 Marks)
b. Show diesel cycle on P-V and T-S diagrams and derive an expression for its efficiency. (10 Marks)

Module-2

- 3 a. Explain different engine parts with construction. (10 Marks)
b. Name different types of nozzles with neat sketches, explain any two. (10 Marks)

OR

- 4 a. Describe with the help of suitable sketches:
(i) Jerk pump injection system
(ii) Common rail direct injection system (10 Marks)
b. Explain the working principle of mechanical and pneumatic governors in diesel engines with neat sketches. (10 Marks)

Module-3

- 5 a. Describe the following water cooling system:
(i) Thermo-siphon cooling
(ii) Thermostat cooling (10 Marks)
b. What are advantages and disadvantages of water cooled engines. (10 Marks)

OR

- 6 a. Discuss the important properties of lubricating oil which affect engine performance. (10 Marks)
b. Explain following lubrication system with neat sketches:
(i) Splash system (ii) Full pressure system (10 Marks)

Module-4

- 7 a. What are the objects of supercharging? Explain effect of supercharging. (10 Marks)
b. What is super charging in an IC engine? Explain different types of supercharging in an IC engine. (10 Marks)

OR

- 8 a. Write the advantages and disadvantages of pulse turbocharging. (10 Marks)
b. Difference between turbo-charger engine and normal engine (naturally aspirated). (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-5

- 9 a. Describe stages of combustion phenomenon in SI engines with the help of P-Q diagram. (10 Marks)
b. Explain the principle working of two stroke S.I. and C.I. engines and construction. (10 Marks)
- OR**
- 10 a. Write short notes on: (i) Port design (ii) Scavenging pump (10 Marks)
b. Explain different types of scavenging process with advantages and disadvantages. (10 Marks)

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