



CBCS SCHEME

15MT81

Eighth Semester B.E. Degree Examination, July/August 2022 Automotive Electronics and Hybrid Vehicles

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. Discuss braking system in Automobiles. (08 Marks)
b. Explain the concept of fuel injection in diesel engine. (08 Marks)

OR

- 2 a. Explain four stroke cycle with neat diagram. (08 Marks)
b. Write a note on air/fuel management in automobiles. (08 Marks)

Module-2

- 3 a. With a neat sketch, explain EGR system (Exhaust Gas Recirculation). (08 Marks)
b. What is Hall effect? Explain working of position sensor using Hall effect. (08 Marks)

OR

- 4 a. Write the short notes on the following sensors : (08 Marks)
i) Exhaust oxygen sensors ii) Knock sensors. (08 Marks)
b. Explain evaporative emission systems.

Module-3

- 5 a. With a control segment configuration, explain GPS system structure. (08 Marks)
b. Explain the measurement of speed, fuel and its signal conversions. (08 Marks)

OR

- 6 a. Explain multirate sampling. (08 Marks)
b. Explain communication systems used in Automobiles. (08 Marks)

Module-4

- 7 a. With a neat sketch, explain ABS system. (08 Marks)
b. Briefly explain ON-board diagnostics and OFF-board diagnostics system. (08 Marks)

OR

- 8 a. With a neat sketch, explain automotive cruise control system. (08 Marks)
b. Write a short notes on : i) Expert system ii) Engine analyzer. (08 Marks)

Module-5

- 9 a. Explain the various components of Hybrid electric vehicle. (08 Marks)
b. Write the history of electric vehicle and hybrid vehicle. (08 Marks)

OR

- 10 a. With a neat sketch, explain series hybrid and parallel hybrid configuration of Hybrid Electrical Vehicles. (08 Marks)
b. Explain vehicle simulation for analysis of aerodynamics properties. (08 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.