

Fifth Semester B.E. Degree Examination, July/August 2022
Automotive Electronics

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. List the major components of an IC Engine. (04 Marks)
- b. Explain the 4 – stroke operation of the gasoline fueled IC engine. (08 Marks)
- c. List the effects of spark timing on the engine performance. (04 Marks)

OR

- 2 a. List the two Government requirements that motivated the development of Electronic engine control for an automobile. (04 Marks)
- b. Draw the block diagram of an Electronic fuel control configuration and explain the control sequence process. (08 Marks)
- c. Draw the shock absorber assembly configuration and explain the working. (04 Marks)

Module-2

- 3 a. Draw the configuration of strain gauge MAP sensor and explain the working. Draw the sensor characteristic graph. (08 Marks)
- b. Explain Ignition control system with relevant diagram. (08 Marks)

OR

- 4 a. Explain Hall effect crank position sensor. (08 Marks)
- b. Draw the schematic of the fuel injector and explain the working. (08 Marks)

Module-3

- 5 a. List seven modes of the digital engine controller for fuel control. Explain Warm – up mode. (08 Marks)
- b. Explain Control Unit Software Modules. (08 Marks)

OR

- 6 a. Explain Spark Advance Correction scheme. (08 Marks)
- b. Explain Digital Modules in the Control Unit. (08 Marks)

Module-4

- 7 a. Explain Bus System classification and its applications in the vehicle. (08 Marks)
- b. Explain Digital Cruise Control System with relevant diagram. (08 Marks)

OR

- 8 a. Explain CAN Network node. (08 Marks)
- b. Explain Antilock Brake System. (08 Marks)

Module-5

- 9 a. Explain Low Tire Pressure warning system, with relevant diagram. (08 Marks)
- b. Explain Accelerometer based Air – bag system, with relevant diagram. (08 Marks)

OR

- 10 a. Explain Radio Navigation System. (08 Marks)
- b. Explain Automatic Driving Control System. (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.