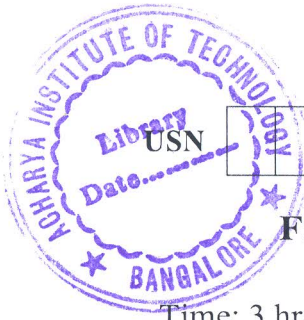


# CBCS SCHEME

17EC561



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Fifth Semester B.E. Degree Examination, Dec.2019/Jan.2020

## Automotive Electronics

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 necessary diagrams, working of a four stroke SI engine. (10 Marks)
- b. Briefly explain the working of a spark plug with neat diagram. (04 Marks)
- c. Explain the working of disk braking system with neat diagram. (06 Marks)

OR

- 2 a. Explain the effect of air/fuel ratio on engine performance. (08 Marks)
- b. Define engine performance parameters with relevant formulae and their units. (08 Marks)
- c. Explain Electronic Ignition System. (04 Marks)

### Module-2

- 3 a. With necessary diagrams, explain the working principle of MAP sensor. (10 Marks)
- b. Explain EGO sensor, with neat diagram. (10 Marks)

OR

- 4 a. Explain Magnetic Reluctance Sensor with relevant diagrams. (10 Marks)
- b. Explain piezo electric knock sensor. (10 Marks)

### Module-3

- 5 a. Explain the control modes for fuel control. (12 Marks)
- b. Explain Secondary Air Management. (08 Marks)

OR

- 6 a. Explain System diagnostics. (08 Marks)
- b. Explain Automatic system adjustment. (08 Marks)
- c. Explain digital digital modulus in the control unit in brief. (04 Marks)

### Module-4

- 7 a. What are the CAN protocol layers? Explain with neat diagram. (10 Marks)
- b. Explain MOST BUS message format with neat block diagrams and give its application. (10 Marks)

OR

- 8 a. Explain Digital Cruise Control System. (06 Marks)
- b. Explain Digital Speed Sensor. (06 Marks)
- c. Explain Throttle actuator. (08 Marks)

### Module-5

- 9 a. Explain how ON-Board diagnostics is performed. (06 Marks)
- b. Explain Engine Analyzer. (06 Marks)
- c. Explain accelerometer based Air bag system. (08 Marks)

OR

- 10 a. Explain low tire pressure warning system. (08 Marks)
- b. Explain collision avoidance Radar warning system. (08 Marks)
- c. Explain Sign Post navigation. (04 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.