

# CBCS SCHEME



15EC561

## Fifth Semester B.E. Degree Examination, June/July 2019 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. Compare the different strokes in a 4 stroke engine with necessary diagrams. (10 Marks)  
b. With neat diagram, discuss high voltage circuit in SI engine. (06 Marks)

OR

- 2 a. What do you mean by stoichiometric [Air/Fuel] ratio? Discuss the effect of air factor ( $\sigma$ ) in the stoichiometric ratio. (08 Marks)  
b. Explain the following with respect to 4 stroke engine :  
i) Power ii) Thermal efficiency iii) Torque iv) BSFC. (08 Marks)

### Module-2

- 3 a. With a neat diagram, explain MassAirFlow sensor. (08 Marks)  
b. List the importance of exhaust gas oxygen sensor. (08 Marks)

OR

- 4 a. With necessary sketches differentiate the working principles between optical crankshaft position sensor and hall effect position sensor. (10 Marks)  
b. With necessary diagram, discuss the throttle angle sensor to find position of throttle plate. (06 Marks)

### Module-3

- 5 a. List the seven control modes for fuel control. Discuss in detail any three of them. (10 Marks)  
b. Why Anti Lock Braking System [ABS] is used in cars discuss in detail. (06 Marks)

OR

- 6 a. How secondary air management and integrated as engine control system? Explain. (08 Marks)  
b. Explain the need of EGR control system with diagrams. (08 Marks)

### Module-4

- 7 a. Differentiate the working procedure with respect layer architecture between CAN protocol and Bluetooth. (12 Marks)  
b. How a throttle actuator is used in digital cruise control system? Explain. (04 Marks)

OR

- 8 a. How an PI controllers used in cruise control system? Explain also discuss the need for digital cruise control system. (10 Marks)  
b. Differentiate between LIN and MOST bus. (06 Marks)

### Module-5

- 9 a. Explain with a neat diagram generic automatic navigation system. (08 Marks)  
b. How different alternate fuel engines can be adopted to today's automotive. (08 Marks)

OR

- 10 Write a short note on the following :  
a. GPS in automotive  
b. Low tier pressure warning system  
c. Anti-collision warning system  
d. Dead reckoning system. (16 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.