17EC561

Fifth Semester B.E. Degree Examination, Aug./Sept.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 IC engine. **(10 Marks)**
   b. Briefly explain motivation behind electronic engine control. **(06 Marks)**
   c. Write a note on Engine Mapping. **(04 Marks)**

OR

2 a. Explain spark plug configuration, spark pulse generation and ignition timing with relevant diagrams. **(10 Marks)**
   b. Explain the effect of Air/Fuel ratio in engine performance. **(05 Marks)**
   c. With neat diagram, explain Electronic Ignition system. **(05 Marks)**

Module-2

3 a. Explain air flow rate sensor with neat diagram. **(10 Marks)**
   b. With neat schematic of solenoid, explain working of fuel injector and pulse mode fuel control with relevant diagram. **(10 Marks)**

OR

4 a. What is Hall effect? Explain with a neat diagram position sensor using principle of Hall effect. Compare it with magnetic reluctance sensor. **(10 Marks)**
   b. With neat diagram, explain EGR Actuator. **(10 Marks)**

Module-3

5 What are seven modes of fuel control? Explain them in detail. **(20 Marks)**

OR

6 a. What is Idle speed control? Explain with a neat block diagram idle speed control system. **(10 Marks)**
   b. What is the use of secondary air? With the help of diagram, explain how the secondary air is controlled. **(10 Marks)**

Module-4

7 a. Explain with neat diagram Antilock braking system. **(10 Marks)**
   b. Explain LIN and Most Bus. **(10 Marks)**

OR

8 a. Explain digital cruise control system with help of relevant diagram. **(10 Marks)**
   b. What are CAN Protocol layers? What are the four different frame? Write the message format. **(10 Marks)**

Module-5

9 a. Explain Collision Avoidance Radar Warning system with relevant diagrams. **(10 Marks)**
   b. Explain Accelerometer based Airbag system with relevant diagrams. **(10 Marks)**

OR

10 a. Explain with neat diagram Radio Navigation system. **(10 Marks)**
   b. Explain the automatic driving control system with relevant diagram. **(10 Marks)**

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