CBCS SCHEME

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18MT81

Eighth Semester B.E. Degree Examination, June/July 2024
Automotive Electronics and Hybrid Vehicles

Time: 3 hrs. Max. Marks: 100

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

Module-1

1 a. With a neat sketch, explain working of four stroke spark ignition engine. **(10 Marks)**

b. What are the drive trains? With neat schematic diagram, explain the planetary gear system. **(10 Marks)**

OR

2 a. Explain with neat diagram the working operation of braking system. **(10 Marks)**

b. Write short note on the following:
(i) Air fuel system (ii) Starting system
(iii) Steering system (iv) Ignition timing **(10 Marks)**

Module-2

3 a. What is Hall effect? Explain the working of position sensors using hall effect. **(10 Marks)**

b. Describe the operation of evaporative emission system with neat diagram. **(10 Marks)**

OR

4 a. With neat sketch, explain EGR system. **(10 Marks)**

b. Define actuator. With neat diagram, explain the working of ignition actuator. **(10 Marks)**

Module-3

5 a. Explain the remote keyless system with a neat block diagram. **(10 Marks)**

b. Explain the GPS structure with a control segment configuration. **(10 Marks)**

OR

6 a. Define automotive instrumentation. Explain the operation based automotive instrumentation with neat diagram. **(10 Marks)**

b. Explain the measurements of speed, fuel, pressure and its signal conversions. **(10 Marks)**

Module-4

7 a. With a neat diagram, explain anti-lock braking system. **(10 Marks)**

b. Explain the automotive cruise control system with neat diagram. **(10 Marks)**

OR

8 a. Explain the operation of on-board and off-board diagnostic in detail. **(10 Marks)**

b. Explain the working operation of cousin avoidance radar washing system. **(10 Marks)**

Module-5

9 a. Give comparison between electric vehicles and hybrid vehicles. **(10 Marks)**

b. Explain with neat sketch the architecture of electric vehicles. **(10 Marks)**

OR

10 a. With neat diagram, explain series and parallel hybrid configuration of hybrid electric vehicles. **(10 Marks)**

b. Explain the vehicle simulation for analysis of aerodynamic properties. **(10 Marks)**

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