CBCS SCHEME

USN | | | | | | | | | | |

18MT81

Eighth Semester B.E. Degree Examination, Dec.2024/Jan.2025
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. Explain with neat sketch major components of the engine. **(10 Marks)**

b. Explain with neat sketch working principle of four stroke cycle. **(10 Marks)**

OR

2 a. With diagram, explain spark pulse generation in Engine. **(10 Marks)**

b. With neat sketch, explain different braking systems used in vehicles. **(10 Marks)**

Module-2

3 a. Define sensors and Actuators. **(04 Marks)**

b. Explain with neat sketch throttle position sensor. **(08 Marks)**

c. Explain Engine crankshaft angular position sensor and Hall effect position sensor. **(08 Marks)**

OR

4 a. With neat sketch, explain in fuel injector. **(10 Marks)**

b. Explain with neat sketch, Exhaust Gas Recirculation (EGR). **(10 Marks)**

Module-3

5 a. Explain concept of sampling. **(08 Marks)**

b. Write a short note with respect to measurement and signal conversion of the following :
i) Speed ii) Fuel iii) Pressure **(12 Marks)**

OR

6 a. With neat sketch, explain Remote keyless entry. **(10 Marks)**

b. Explain Global Positioning System (GPS). **(10 Marks)**

Module-4

7 a. Explain with neat sketch, Cruise Control System. (10 Marks)

b. Explain with neat sketch Antilock Brake System (ABS). (10 Marks)

OR

8 a. Explain Future automotive electronics systems. (08 Marks)

b. Explain the following :
   i) Timing Light
   ii) Engine analyzer
   iii) On- board diagnostics
   iv) Off – board diagnostics (12 Marks)

Module-5

9 a. Define the following
   i) Electric vehicles
   ii) Hybrid electric vehicles (06 Marks)

b. Explain different components in electric and Hybrid Vehicle. (10 Marks)

c. Explain difference between Ev and ICEV (Internal combustion Engine Vehicle) (04 Marks)

OR

10 a. Explain with sketch Ev transmission path [Architecture] (10 Marks)

b. Explain power Train component sizing and mass analyzer. (10 Marks)

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