

M.E. AUTOMOBILE ENGINEERING FIRST YEAR FIRST SEMESTER EXAM 2024

AUTOMOTIVE ELECTRICALS & ELECTRONICS

Time: Three Hours

Marks: 100

(Answer any FIVE questions)

*Different parts of the same question should be answered together
All symbols carry their usual meanings unless otherwise mentioned.*

1. a) What are the different sensors used in modern electronic vehicle? Briefly explain their operation? 14
- b) How actuators are classified? Explain their function. 6
2. a) What are advantages of electronic fuel injection system? 6
- b) What are the major components of an electronic fuel injection system? Briefly explain its operation. 10
- c) What do you mean by close loop feedback control? 4
3. a) How electronic ignition systems are classified? 6
- b) How does a distributor-less Ignition (DI) system work in electronic vehicles? 8
- c) Explain the operation of spark advance mechanism. 6
4. a) How batteries are rated? 6
- b) What are different charging techniques of battery? 4
- c) What are the common problems occurred in lead acid batteries? 4
- d) What are the advantages and disadvantages of alkaline batteries 6
5. a) Explain the principle of operation of a starting system with schematic diagram? 10
- b) Explain the operation of a charging system along with voltage regulator. 10
6. a) What are the different lights are used in modern vehicles? 6
- b) What are the different safety features available in modern vehicle? 6
- c) Explain the operation of antilock braking system. 6
7. Write short note (4 X 5) 20
 - a) Air bag restraint system
 - b) Automated vehicle driving system
 - c) Exhaust gas recirculation system
 - d) Alkaline battery