

M.E. AUTOMOBILE ENGINEERING FIRST YEAR FIRST SEMESTER EXAM 2025**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) Explain the operation of a modern vehicle with a schematic layout. 5
 b) How automotive car sensors are classified? Briefly explain the functions of different sensors use in modern electronic vehicles. 10
 c) What are different types of actuators use in vehicles? 5
2. a) Discuss how an electronic fuel injection system work using suitable schematic diagram. 10
 b) Briefly discuss about different types of gasoline injection systems. 10
3. a) What are the advantages of electronic ignition system? 5
 b) Explain the operation of capacitive discharge ignition (CDI) system. 7
 c) Discuss about different methods of controlling ignition timing. 8
4. a) What are the advantages and disadvantages of lead-acid batteries? 6
 b) Explain the working principle of lithium-ion battery. 7
 c) How batteries are rated? 7
5. a) Explain the operation of a charging system with its major components. 10
 b) Explain the function of the different components of a starting system. 10
6. a) What are the different lights use in modern vehicles? 6
 b) Explain the working principle of an air bag restraint system. 9
 c) Explain the operation of electronic suspension system. 5
7. Write note (Any FOUR) (4 X 5) 20
 - a) Alkaline battery
 - b) Antilock breaking system (ABS)
 - c) Distributorless ignition system
 - d) Exhaust gas recirculation (EGR) system
 - e) Close loop control EFI system