

CBCS SCHEME

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21AU72

Seventh Semester B.E./B.Tech Degree Examination, Dec.2024/Jan.2025 Automotive Electrical and Electronic Systems

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 the working of earth return and insulated system. (10 Marks)
- b. Describe the cable specifications of automobile, also mention how low and high voltage automobile cable help in vehicles. (10 Marks)

OR

- 2 a. With the neat sketch explain the working principle and construction of lead acid battery. (10 Marks)
- b. What are the defects occurs in batteries, also describe what are the care should take for idle and new batteries. (10 Marks)

Module-2

- 3 a. Explain the construction and working of D.C. generator. (10 Marks)
- b. Explain cutout relay with a neat sketch. (10 Marks)

OR

- 4 a. With circuit diagram, explain series, shunt and compound wound generators. (10 Marks)
- b. What are the advantages of alternator over D.C. generator? (10 Marks)

Module-3

- 5 a. Describe the constructional features of Battery Ignition System with suitable diagram. (10 Marks)
- b. Compare Battery, Ignition System with Magneto Ignition System. (10 Marks)

OR

- 6 a. Sketch and explain spark plug. (10 Marks)
- b. Sketch and explain Windscreen – Wipers mechanism. (10 Marks)

Module-4

- 7 a. Explain various engine design parameters for Exhaust Emission control. (10 Marks)
- b. What is artificial intelligence? Explain with relevance to automotive engineering taking adaptive ignition system as example. (10 Marks)

OR

- 8 a. Write short notes on :
i) Central locking (10 Marks)
ii) Air bags. (10 Marks)
- b. Sketch and explain Antilock Brakes and Traction Control System. (10 Marks)

Module-5

- 9 a. What are the advantages and disadvantages of hybrid electric vehicles? (10 Marks)
b. What are the advantages and disadvantages of electric vehicles? (10 Marks)

OR

- 10 Explain the following : (20 Marks)
- a. Light sensors
b. Proximity sensors
c. Hall effect sensors
d. Internet of Things (IoT).
