



# CBCS SCHEME

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18AU72

Seventh Semester B.E. Degree Examination, Dec.2023/Jan.2024

## Automotive Electrical and Electronic System

Time: 3 hrs.

Max. Marks: 100

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

### Module-1

- 1 a. Explain in detail the construction, working principle merits and demerits of Lead Acid Battery. (12 Marks)
- b. Write a note on :
- i) Effect of Temperature on specific gravity of Electrolyte
- ii) Sulfation in Battery. (08 Marks)

OR

- 2 a. What is Armature Reaction? How Armature reaction countered in generator; with neat sketch also list its merits and demerits. (10 Marks)
- b. Define AC Generator and explain in working principle. (10 Marks)

### Module-2

- 3 a. Explain the construction and working of stator motor. (10 Marks)
- b. Explain the working of a Bendix Drive with neat sketch. (10 Marks)

OR

- 4 a. Discuss the following characteristic for series motor.  
i)  $(T_a V_s I_a)$  ii)  $(N V_s I_a)$  iii)  $(N V_s T_a)$  (12 Marks)
- b. Explain cut-out Relay with neat sketch. (08 Marks)

### Module-3

- 5 a. Explain the working principle of ignition system and its fundamentals function; also mention its application. (10 Marks)
- b. Explain the working principle of Battery and Magneto Ignition system with suitable diagram. (10 Marks)

OR

- 6 a. Sketch and explain : i) Electrical fuel pump ii) Electrical Horn (10 Marks)
- b. Sketch and explain the sealed Beam Auxiliary Lightings and its merits. (08 Marks)
- c. Define Wind Screen – Wiper's. (02 Marks)

### Module-4

- 7 a. With a Block diagram, explain combined Ignition and Fuel Management System. (08 Marks)
- b. What is complete vehicle control system? Explain the sensor used in CVCS. (08 Marks)
- c. Write a note on Artificial Intelligence and Engine Management. (04 Marks)

OR

- 8 a. What are the Benefits of ABS? explain the function of each components with neat sketch of ABS. (12 Marks)
- b. With neat diagram; explain the sensor's used in Active suspension system. (08 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

**Module-5**

- 9 a. Explain the HEV Drive train components with neat sketch. (08 Marks)  
b. Explain the EV-Transmission and power Devices. (08 Marks)  
c. What are the Advantages and disadvantages of Electrical Vehicles? (04 Marks)
- OR**
- 10 a. Explain the working principle and Application of various Lights'. (12 Marks)  
b. Classification of Translation and Sensors. (04 Marks)  
c. Write a note on Transducer and Sensor's. (04 Marks)

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