

IV B. TECH I SEMESTER REGULAR EXAMINATIONS, NOVEMBER - 2023
ELECTRIC VEHICLES
(ELECTRICAL AND ELECTRONICS ENGINEERING)

Time: 3 hours

Max. Marks: 70

Note : Answer ONE question from each unit (5 × 14 = 70 Marks)

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UNIT-I

1. a) Compare conventional vehicle with Hybrid electric vehicle? [8M]  
 b) Highlight the history of electric vehicle. [6M]

(OR)

2. With help of block diagram explain the major components of electric vehicle. [14M]

UNIT-II

3. a) Draw a general lay out of EV and discuss the transmission characteristics? [7M]  
 b) Discuss the terms rolling resistance and aerodynamic drag. [7M]

(OR)

4. a) Explain the Principle, Fundamentals and Classification of Electric Motor. [7M]  
 b) Explain basic of vehicle performance with its characterization. [7M]

UNIT-III

5. With a neat sketch, explain the configuration of Series hybrid electric drive train. [14M]

(OR)

6. Explain the different power flow control modes of a typical parallel hybrid system with the help of block diagrams? [14M]

UNIT-IV

7. Discuss Battery State of charge (SOC), State of Health (SOH) Estimation, depth of discharge. [14M]

(OR)

8. a) Describe battery pack development with an example. [7M]  
 b) A prismatic Li-Ion Cell having Voltage 4.2V, current 15Ah Develop a battery pack with these cells for i.120Ah capacity ii. For 29.2v. [7M]

UNIT-V

9. Explain the Classification of EV Charging infrastructure in India. [14M]

(OR)

10. Explain about Lithium Based Batteries in Energy Storage System. [14M]

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