

B.Tech. (Mechanical Engineering) Seventh Semester (C.B.C.S.)
Open Elective-II : Introduction to Electric Vehicles

P. Pages : 1

Time : Three Hours



PSM/KW/23/8227

Max. Marks : 70

- Notes :
1. All questions carry marks as indicated.
 2. Solve Question 1 OR Questions No. 2.
 3. Solve Question 3 OR Questions No. 4.
 4. Solve Question 5 OR Questions No. 6.
 5. Solve Question 7 OR Questions No. 8.
 6. Solve Question 9 OR Questions No. 10.
 7. Due credit will be given to neatness and adequate dimensions.
 8. Assume suitable data whenever necessary.
 9. Illustrate your answers whenever necessary with the help of neat sketches.
 10. Use of non programmable calculator is permitted.

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|-----------|----|---|----|
| 1. | a) | What is an electric vehicle? Enlist and explain various types of Electric Vehicles in detail. | 7 |
| | b) | What are various Benefits and Challenges of Electric vehicle. | 7 |
| OR | | | |
| 2. | a) | How is regenerative braking used in electric vehicles? | 5 |
| | b) | What are the challenges in the construction of electric vehicles? | 9 |
| 3. | a) | Explain the term “electric traction” in detail. | 7 |
| | b) | What are various advantages and disadvantages of electric traction? | 7 |
| OR | | | |
| 4. | a) | What are characteristics and types of DC Motors. | 9 |
| | b) | Explain the working of 3-phase induction motor. | 5 |
| 5. | a) | What are various energy storage requirements in electric vehicles. | 9 |
| | b) | Explain various factors which are considered for analysis of battery-based energy storage. | 5 |
| OR | | | |
| 6. | a) | What is Hybridization of different energy storage devices? | 5 |
| | b) | What is Battery electrochemistry in context of Electric Vehicle? | 9 |
| 7. | a) | What is energy management used electric vehicle? Enlist & explain various energy management strategies in detail. | 3 |
| | b) | Classify in detail different energy management strategies. | 11 |
| OR | | | |
| 8. | a) | Compare the different energy management strategies used in electric vehicle. | 14 |
| | b) | Classify the different charging technology for EV Charging station. | |
| 9. | | Explain how government policies can affect the future of Electric vehicle? | 14 |
| OR | | | |
| 10. | | Compare Indian & Global Scenarios in Electric Vehicles. | 14 |
