

Seat No. **MAR_APR 2025 SUMMER EXAMINATION****11731 Bachelor of Technology (NEP-2.0)****Sub. Name: Electric Vechile****Sub. Code: 81529/81806****Day and Date: MAY ,26-05-2025****Total Marks: 70****Time: 02:30 PM To 05:00 PM**

Instructions: 1. All questions are compulsory
 2. Assume suitable data wherever necessary and mention it boldly
 3. Draw neat labelled diagrams wherever necessary

Q1) Attempt any two from the following. [12]

- a. Compare with graph tractive effort and vehicle speed between gasoline engines powered vehicle and electric **motor powered** vehicle. [6]
- b. explain the need for an electrical vehicle [6]
- c. Discuss energy storage in EVs [6]

Q2) Attempt any two from the following. [12]

- a. Discuss the selection criterion for the battery [6]
- b. Explain regenerative braking for battery charging [6]
- c. Explain with example Amp-hr capacity, State of Charge (SOC), Depth of Discharge (DoD), Specific energy and specific power of a battery. [6]

Q3) Attempt any two from the following [11]

- a. Explain wire (conductive) and wireless (Inductive) battery charging in Electric Vehicles with neat sketch [6]
- b. Explain Battery charging algorithm with Flow chart. [5]
- c. Give the classification of different types of battery charging [5]

Q4) . Attempt any two from the following. [12]

- a. Give a brief classification of electric motors used in EVS. [6]
- b. Compare PMSM with BLDC motor. Write applications of PMSM. [6]
- c. Classify in detail DC motor. Explain DC series motor with neat sketch [6]

Q5) Attempt any two from the following.**[12]**

- a. Design a battery-operated electrical vehicle with suitable assumptions? **[6]**
- b. Explain the need of power conversion required in EVs. **[6]**
- c. Discuss the speed control mechanism for the EV. **[6]**

Q6) Attempt any two from the following**[11]**

- a. Explain in detail the environment and human health impact assessments of Electrical vehicle batteries **[6]**
- b. Explain with neat sketch conductive DC charging system **[5]**
- c. Explain self-driving technology from level 1 to level 5 **[5]**

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -

This Question Paper may be distributed for following Subjects as common code.

सदरची प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

1] (101) Bachelor of Engineering (81806) Electric Vechile Part 3 SEM 6

2] (1154) B.Tech. CBCS (81529) Electric Vechile Part 3 SEM 6