

Total No. of Questions : 8]

SEAT No. :

PE-2539

[Total No. of Pages : 2

[6583]-66

T.E. (Electrical)

ELECTRIC MOBILITY

(2019 Pattern) (Semester - VI) (Elective - II) (303151B)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Solve Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicates full marks.
- 4) Use of Calculator is allowed.
- 5) Assume Suitable data if necessary.

- Q1)** a) Explain Constant current charging algorithm used in battery charging. [9]
b) Explain in detail the cell balancing methods. [8]

OR

- Q2)** a) Draw block diagram of Battery Management System and explain it. [9]
b) List the methods of SOC estimation and explain any two in detail. [8]

- Q3)** a) Draw schematic diagram of series HEV drive train and explain its working. [9]
b) Explain with the help of block diagram the Control Strategies parallel Hybrid Electric Drive. [9]

OR

- Q4)** a) Explain in detail the Brake System of EVs and HEVs. [9]
b) Write notes on : [9]
i) Energy Consumption in Braking.
ii) Regenerative braking.

P.T.O.

- Q5)** a) Explain: Sizing of motors and Charging Levels - 01,02 and 03. [9]
b) Write notes on following charging Standards: [8]
i) SAEJ1772,
ii) IEC 60309,

OR

- Q6)** a) Explain PMSM drive with advantages and disadvantages. [9]
b) Write notes. [8]
i) Electric Vehicle Supply Equipment (EVSE).
ii) Bharat DC 001, Bharat AC 001.

- Q7)** a) Explain in brief role of aggregator for V2G. [9]
b) Explain the concept and structure of Vehicle to Vehicle. [9]

OR

- Q8)** a) Explain the concept of V2H with demand response and case study of V2H. [9]
b) Explain in detail V2G infrastructure in the smart grid. [9]

