

Total No. of Questions : 8]

PA-1466

SEAT No. :

[Total No. of Pages : 2

[5926]-83

T.E. (Electrical)

ELECTRICAL MOBILITY

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

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

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

UNIT - 1

- Q1) a) Explain coulomb Counting method used in SOC estimation. [8]  
b) Explain Constant voltage charging algorithm used in battery charging. [9]

OR

- Q2) a) Explain Thermal management system used in EVs. [8]  
b) State various SOC estimation methods used in batteries, Explain any two methods. [9]

UNIT - 2

- Q3) a) Draw Control Architecture of HEV and all electronic control systems. [10]  
b) Draw schematic diagram of parallel HEV drive train and explain its working. [8]

OR

- Q4) a) Draw diagram for regenerative braking system functioning as Antilock Brake System. [10]  
b) Draw schematic diagram of series HEV drive train and explain its working. [8]

UNIT - 3

- Q5) a) Explain various types of EV Chargers. [8]  
b) Explain Advantages of BLDC drives for HEV. [9]

OR

P.T.O.

- Q6)** a) Write KW rating of AC. Fast Charger of type A, B, C, D and state applications. [8]  
b) Draw charger Architecture and explain it. [9]

**UNIT - 4**

- Q7)** a) Draw and Explain Diagram for modelling of V2G ancillary services. [10]  
b) Draw Flowchart for EV Charging Infrastructure and explain it. [8]

OR

- Q8)** a) Compare V2H, V2V and V2G (any 3 points) [10]  
b) Explain V2G concept and state advantages of V2G. [8]

