

Total No. of Questions : 8]

SEAT No. :

P754

[Total No. of Pages : 2

[5870]-1058

T.E. (Electrical)

ELECTRICAL MOBILITY

(2019 Pattern) (Elective - II) (Semester - 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 side indicate full marks.
- 4) Use of calculator is allowed.
- 5) Assume suitable data if necessary.

Q1) a) Draw block diagram of Battery Management System and explain it. [8]

b) Explain Constant current charging algorithm used in battery charging. [9]

OR

Q2) a) Explain functions of battery management system. [8]

b) Explain Coulomb Counting method used in SOC estimation. [9]

Q3) a) Draw block diagram for vehicle speed control system and explain it. [10]

b) Draw schematic diagram of series HEV drive train and explain its working. [8]

OR

Q4) 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]

Q5) a) Draw charger Architecture and explain it. [8]

b) Explain Advantages of PMSM 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) Write short note on battery swapping. [9]

- Q7)** a) Draw and explain block diagram of interactive operation between EVs and Power grid. [10]
b) Draw block diagram of Home control and Vehicle control in V2H and explain it. [8]

OR

- Q8)** a) Draw Flowchart for EV Charging Infrastructure and explain it. [10]
b) Explain V2G concept and state advantages of V2G. [8]
