

Total No. of Questions : 8]

PD4276

SEAT No. :

[Total No. of Pages : 2

[6403]-73

T.E. (Electrical)

ELECTRIC MOBILITY

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

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)** 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]**

P.T.O.

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

b) Explain Advantages of PMSM drives for HEV. **[9]**

OR

Q6) a) Explain sizing of motors and charging levels-01,02 and 03. **[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]**

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