

Total No. of Questions : 8]

SEAT No. :

P-6581

[Total No. of Pages : 2

[6181]-132

B.E. (Electrical)

ELECTRICAL AND HYBRID VEHICLE

(2019 Pattern) (Semester - VII) (403144B) (Elective - IV)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.
- 2) Figures to the right indicate full marks.
- 3) Assume suitable data if necessary.
- 4) Neat diagrams must be drawn wherever necessary.

- Q1)** a) Explain any one energy management strategies for EV's. [7]  
b) Write a short note on electric bus with a suitable example. [5]  
c) Describe EV fleet management. [6]

OR

- Q2)** a) State and explain various types of sensors used in EV. [6]  
b) Draw and explain Series hybrid configuration. [6]  
c) Mention merits and demerits of fuel cell vehicle. [6]

- Q3)** a) Write a short note on vehicle dynamics. [5]  
b) State different drivetrains configuration in HEVs and explain anyone. [6]  
c) Explain any one power management strategy used for HEV. [6]

OR

- Q4)** a) Define hybridization and explain how it applies to different energy storage systems utilised in EVs. [8]  
b) Draw parallel HEV configuration and explain its different operating modes. [9]

P.T.O.

- Q5)** a) Discuss motor torque calculations for an EV. [7]  
b) Mention important considerations for battery pack design. [5]  
c) Draw and explain induction motor control for an EV application. [6]

OR

- Q6)** a) Describe power calculation for EV. [6]  
b) Draw and explain PMSM motor control for an EV application. [7]  
c) Write a short note on CAN vehicle network. [5]

- Q7)** a) Define Startup and discuss important details about startup. [6]  
b) Describe star labeling of BEE for battery pack. [6]  
c) Write a short note on FAME - II policy. [5]

OR

- Q8)** a) Explain EV tariff rate considerations declare by government for EV charging. [6]  
b) Discuss important considerations for li-ion battery recycling policy. [6]  
c) Write important concerns about FAME II policy. [5]

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