

Total No. of Questions : 08]

SEAT No. :

P3323

[Total No. of Pages :2]

[5461] - 580 - A

B.E. (Electrical)

ELECTRIC AND HYBRID VEHICLES

(2015 Pattern) (403144D) (Semester - I) (Elective - II)(End Sem)

Time : 2 ½ Hours]

[Max. Marks :70

Instructions to the candidates:

- 1) *Neat diagrams must be drawn wherever necessary.*
- 2) *Figures to the right indicate full marks.*
- 3) *Solve Q1 or Q2, Q3 or Q4, Q5 or Q6, and Q7 or Q8.*
- 4) *Assume suitable data, if necessary.*

- Q1)** a) Which are the various parameters that determines the performance of the vehicle. [6]
- b) Explain with the neat diagram working & components of Fuelcell vehicle. [8]
- c) What is Battery Management System ? Explain functions of BMS. [6]

OR

- Q2)** a) Write a short note on Ultra capacitor. [6]
- b) What is SoC? Explain any method for estimation of SoC. [6]
- c) Which are the different cell balancing methods? Explain any one with diagram. [8]

- Q3)** a) Energy consumption of Electric Vehicle. [8]
- b) Explain various hybrid drive train. [8]

OR

- Q4)** a) Which are the different challenges for EV design. [8]
- b) Explain in detail Tractive Effort of electric vehicle. [8]

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- Q5)** a) Explain GPS tracking of Electric Vehicle. [8]
b) Draw & explain Switch Reluctance Motor. [8]

OR

- Q6)** a) Explain working BLDC motor with diagram. [6]
b) Explain auto parking system. [4]
c) Compare Electric and Hydraulic steering. [6]

- Q7)** a) Which are the various PHEV control strategies? Explain any one in detail. [6]
b) Describe control method for EV aggregator for dispatching a fleet of EV. [8]
c) Explain concept of Vehicle to Vehicle. [4]

OR

- Q8)** a) Write short note on Vehicle to Grid. [8]
b) Explain Vehicle to Home. [6]
c) Explain demand response for EV. [4]

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