[6262]-382

T.E. (Mechanical / Electrical) (Honors)
ELECTRIC VEHICLES
e-Vehicles System Design
(2019 Pattern) (Semester - II) (302033MJ)

Time : 2½ Hours]   *[Max. Marks : 70*

Instructions to the candidates:

1) *Answer Four questions from the following.*
2) *Draw neat labeled diagrams wherever necessary.*
3) *Figures to the right side indicate full marks.*
4) *Use of non-programmable electronic calculator is permitted.*
5) *Assume Suitable/Standard data if necessary.*

Q1) a) Explain with neat diagram topology of tyres design and its different component **[8]**

b) Classify braking system used in automotive. **[9]**

OR

Q2) a) Explain elements of vehicle dynamics system **[8]**

b) Explain with neat diagram regenerative braking system (ABS) **[9]**

Q3) a) Explain multi speed electric vehicle **[8]**

b) Explain All wheel drive layout design. **[9]**

OR

Q4) a) Explain Transmission system in HEV. **[8]**

b) What is Torsen and active differential system. **[9]**

Q5) a) Explain battery compartment and its need in E-vehicle **[9]**

b) Write short note on: **[9]**

   i) Battery life analysis

   ii) Vent management

OR

Q6) a) Explain battery performance degradation modeling **[9]**

b) Explain with neat diagram Air and Liquid cooling used for battery compartment. **[9]**

Q7) a) Explain ergonomics base Roll cage with neat sketches. **[9]**

b) Explain the importance and process involved in Crash/Impact analysis **[9]**

OR

Q8) a) What do you mean by Vehicle dynamics? Explain components of vehicle dynamics with neat sketches **[9]**

b) Explain ergonomics based packaging design. **[9]**

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