

Total No. of Questions : 8]

SEAT No. :

P703

[Total No. of Pages : 2

[6004]-696

B.E. (Mechanical/Automobile) (Honors)
MODELLING AND SIMULATION OF EHV
(2019 Pattern) (Semester-VII) (302034MJ)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Solve Q.No.1 or Q.No.2, Q.No.3 or Q.No.4, Q.No.5 or Q.No.6, Q.No.7 or Q.No.8.*
- 2) *Figures to the right indicate full marks.*
- 3) *Draw the neat sketch wherever necessary.*

- Q1)** a) Explain A Motor Control Unit in electric vehicle with its functional features? [4]
- b) Explain Electronic Control Unit of electric vehicle with its types and working principal? [8]
- c) What is Battery/Cell Control System in EV? Explain with its functions and working principal? [8]

OR

- Q2)** a) Explain Torque and speed coupling in electric vehicle? [4]
- b) Explain EV and EHV configuration based on power electronics? [8]
- c) Explain the importance of Sensor Management and Integration for electric vehicle with functional and application point of view? [8]

- Q3)** a) Explain EV configuration and list out the components involved in it? [8]
- b) Explain the important feature of following (any four). [8]
- i) Unicycle
 - ii) Bicycle
 - iii) Dicycle
 - iv) Tricycle
 - v) Quadracycle

OR

P.T.O.

Q4) a) Explain front and rear wheel drive for electric vehicle with its advantages and disadvantages? [8]

b) Explain Propulsion and Power distribution system in electric vehicle with its main components? [8]

Q5) a) Explain Frame building Problems? Also list out Types of Frame Damage & Hc to Spot it? [8]

b) What do you mean by the term “DFMEA”? Explain the objective feature that c achieve the in the process of system or equipment design? [8]

OR

Q6) a) Explain Chassis frame layout with suitable sketch? Also list out various types Loads on the Chassis frame? [8]

b) Explain the following parameters related to vehicle dynamics in detail. [8]

i) Aerodynamic drag

ii) Aerodynamic lift

iii) Side force

iv) Rolling movement

Q7) a) Explain Durability along with Factors Affecting Electric Car Durability?[10]

b) Explain Fatigue analysis. List out The factors which affect the fatigue behavior? [8]

OR

Q8) a) Explain the phases involved in Crashworthiness Design along with its important features? [10]

b) What do you mean by Topology and Topography Optimization, explain with suitable example? [8]

