BACHELOR OF TECHNOLOGY (C.B.C.S.) (2020 COURSE)
B.Tech.Sem - V MECHANICAL : WINTER- 2022
SUBJECT : ITC-III: HYBRID & ELECTRIC VEHICLES

Day : Friday | Time : 02:30 PM-05:30 PM

Date : 16-12-2022 | W-24507-2022 | Max. Marks : 60

N.B.

1) All questions are **COMPULSORY.**
2) Figures to the right indicate **FULL** marks.
3) Assume suitable data if necessary.
4) Draw neat and labelled diagrams wherever necessary.

Q.1 Explain configurations of electric vehicles and write a note on tractive effort. **(10)**

OR

Q.1 Compare hybrid electric vehicles with internal combustion engine. Explain with neat sketch components of electric vehicle. **(10)**

Q.2 Explain with neat sketch construction and working of series hybrid electric drive trains. Also write disadvantages of series hybrid electric drive trains. **(10)**

OR

Q.2 Explain with neat sketch construction and working of torque-coupling parallel hybrid electric drive trains. **(10)**

Q.3 Explain with neat sketch architecture design of plug-in hybrid vehicle (PHEV). Also write advantages and disadvantages of Plug in hybrid Vehicle. (PHEV). **(10)**

OR

Q.3 Explain with neat sketch architecture design of fuel cell electric vehicle (FCEV). Also write advantages and disadvantages of fuel cell electric vehicle (FCEV). **(10)**

Q.4 Explain construction and working of lead-acid batteries. **(10)**

OR

Q.4 Explain with neat sketch construction and working of fuel cell energy storage technologies. **(10)**

Q.5 Explain with block diagram switch reluctance motor drives system also explain any one switch reluctance motor configuration. **(10)**

OR

Q.5 Write advantages and disadvantages of permanent magnetic motor drives. Explain with neat sketch working of BLDC machine. **(10)**

Q.6 Classify and explain different energy management strategies. **(10)**

OR

Q.6 What are the different modes of charging batteries? Compare them in details. **(10)**

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