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Total No. of Pages : 01

Total No. of Questions : 08

M.Tech (Power System) (Sem.-1)
ELECTRIC AND HYBRID VEHICLES
Subject Code : MTPS-104A-18
Paper ID : [75816]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWELVE marks.

1.
 - a) Describe the social and environmental significance of hybrid and electric vehicles.
 - b) Represent and explain the mathematical models to describe performance of electric vehicles.
2.
 - a) Describe various hybrid drive-train topologies applicable for hybrid traction.
 - b) Explain how power flow can be controlled in hybrid drive-train topologies.
3. Enumerate the electric components used in hybrid and electric vehicles. Hence explain configuration and control of DC motor drives used in electric vehicles.
4. Describe configuration and control of switched reluctance motor drives in electric vehicles.
5. Clarify the significance of matching the electric machines and the internal combustion engines.
6. Describe the steps for sizing the propulsion motor and power electronic components in hybrid electric vehicles. Mention the challenges as per latest trends of research in this domain.
7. With suitable diagram, describe the significant energy management strategies used in hybrid and electric vehicles.
8. Explain implementation issues of different energy management strategies in hybrid electric vehicles.