Roll No. | | | | | | | | | | | | | **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

M.Code : 75816

Date of Examination : 25-01-2023

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) How hybrid and electric vehicle were evolved ? Give example of each one.

   b) What are the advantages and disadvantages of hybrid and electric vehicles over conventional oil based vehicles?

2. Develop the mathematical models to describe the characteristics and performance of hybrid and electric drives. Also, draw the characteristics curves.

3. a) Explain various hybrid drive-train topologies. Give example of each one.

   b) Explain function of components used in hybrid and electric vehicles.

4. a) Draw and explain the construction principle of operation and control of Switch Reluctance Motor derives.

   b) How over all electric drive system efficiency is determined? Explain.

5. a) What do you understand the matching of electric machine with internal combustion engine?

   b) Explain the matching the electric machine and the Internal Combustion Engine (ICE).

6. a) What are roles of power electronics in electric vehicle system? Brief each devices and its purpose.

   b) What are criteria for selection of energy storage technology devices and communication?

7. What are components where energy saving options are available in electric and hybrid vehicles? Give Classification of different energy management strategies.

8. Compare different energy management strategies and their Implementation issues in hybrid and electric drives system.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.