Total No. of Questions : 8] *[Total No. of Printed Pages : 2*

Roll No .....

EX-703(A)-CBGS

B.Tech., VII Semester

Examination, December 2020

Choice Based Grading System (CBGS)

Hybrid and Electrical Vehicles

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.

ii) All questions carry equal marks.

1. a) Which are the resistive forces that retard the motion of a four-wheel vehicle? Show with a diagram. 7
   b) With the help of block diagram explain the major components of an electric vehicle. 7

2. a) How the electric motors used in EVs differs from that of used in industrial application? 7
   b) Explain the terms specific energy and energy density as applied to batteries. 7

3. a) What are the important subsystems in an electric/hybrid vehicle? 7
   b) Sketch the ideal torque-speed characteristics required for an electric/hybrid vehicle power plant. 7

4. a) Draw six different configurations of drive trains in electric vehicles. Briefly explain each configuration. 7
   b) What are the social and environmental impacts of hybrid vehicles? 7

5. a) Differentiate between complex hybrid and series parallel hybrid configurations. 7
   b) What are factors affecting the performance of batteries used in EVs? 7

6. a) Give the advantages and disadvantages of fuel cells. 7
   b) What are the desired features of motors used for electric vehicles? 7

7. a) Describe energy management strategies used in hybrid and electric vehicles. 7
   b) Describe the classification of different energy management strategies. 7

8. a) Write short notes on Design of a Battery Electric Vehicle (BEV). 7
   b) What strategy is followed while designing hybrid vehicles. 7

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