

Code No: 157BK**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech IV Year I Semester Examinations, July/August - 2022****ELECTRICAL AND HYBRID VEHICLES****(Electrical and Electronics Engineering)****Time: 3 Hours****Max.Marks:75**

Answer any five questions
All questions carry equal marks

- 1.a) Briefly explain design and working comparison of hybrid electric vehicle with conventional vehicles.
- b) Explain about hybrid electric vehicle power source characterization. [7+8]
2. Discuss the mathematical models to describe the hybrid electric vehicle performance. [15]
- 3.a) How do modern drive trains impact on energy supplies? Explain.
- b) Explain the social and environmental importance of hybrid and electric vehicles. [7+8]
- 4.a) What is Traction and discuss concept of hybrid traction.
- b) Discuss various hybrid drive-train topologies. [7+8]
5. Briefly discuss the configuration and control of Switch Reluctance Motor drives. [15]
6. Briefly discuss the configuration and control of Permanent Magnet Motor drives. [15]
- 7.a) Discuss Fuel Cell based energy storage and its analysis.
- b) Elaborate Hybridization of different energy storage devices. [7+8]
- 8.a) Discuss the implementation issues of energy management strategies.
- b) With neat sketch, explain design considerations of a Battery Electric Vehicle (BEV). [7+8]

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