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Question Paper Code: 97302

B.E./B.Tech. DEGREE EXAMINATION, APRIL 2024

Seventh Semester

Electrical and Electronics Engineering

19UEE702- ELECTRIC VEHICLES

(Regulations 2019)

Duration: Three hours

Maximum: 100 Marks

Answer All Questions

PART A - (10x 2 = 20 Marks)

1. What is meant by a series hybrid electric vehicle? CO1- U
2. What are the environmental impacts of Electric Vehicle? CO1- U
3. What is the sizing of propulsion motor? CO2- U
4. Which component in EV is used for propulsion? CO2- U
5. Mention the drawbacks of NiMH battery CO3- U
6. What is the source of energy storage in electric vehicle? CO3- U
7. Sketch the flowchart for Battery Management System which includes Hardware and Software CO4- U
8. Which Energy storage system is popular among other energy storage systems? Why? CO4- U
9. What is vehicle to grid technology CO5- U
10. Write short notes about Plug-in electric vehicles CO5- U

PART – B (5 x 16= 80Marks)

11. (a) Explain in detail about configuration and control of brushless DC motor drive in Electric Vehicle CO1- U (16)
- Or
- (b) Explain in detail about configuration and control of Induction motor drive in Electric Vehicle CO1- U (16)

12. (a) Explain in detail the electric components used in hybrid and electric vehicles CO2- U (16)
- Or
- (b) Explain in detail about configuration and control of brushless DC motor drives. CO2- U (16)
13. (a) Explain in detail about Fuel Cell based energy storage and its analysis in Electric Vehicles. CO3- U (16)
- Or
- (b) Examine the hybridization of different energy storage devices in Electric Vehicles. CO3- U (16)
14. (a) Explain in detail about battery cell monitoring system and also analyze its current and voltage. CO4- U (16)
- Or
- (b) Explain in detail about power, temperature and heat management in storage system. CO4- U (16)
15. (a) Explain in detail about optimal strategies in home energy management system (HEMS) integrating solar power, energy storage, and vehicle-to-grid CO5- U (16)
- Or
- (b) Explain in detail about Communication & networking: Data storage and acquisition in Electric Vehicle and also explain Electric Vehicle drive train CO5- U (16)