**18EED32**

**Hall Ticket Number:**

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| **IV/IV B.Tech (Regular/Supplementary) DEGREE EXAMINATION** | | | |
| **November,2022** | **Electrical & Electronics Engineering** | | |
| **Seventh Semester** | **Electrical & Hybrid Vehicles** | | |
| **Time:** Three Hours | | **Maximum:** 50 Marks | |
| *Answer Question No.1 compulsorily.* | | | (10X1 = 10 Marks) |
| *Answer ONE question from each unit.* | | | (4X10=40 Marks) |
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| 1. | a) | List out any two vehicle performance parameters. | CO1 | L1 |
|  | b) | Draw the ideal performance characteristics of vehicle. | CO1 | L3 |
|  | c) | What is the functionality of onboard charger? | CO1 | L1 |
|  | d) | Explain the power flow control in electric drive-train? | CO2 | L2 |
|  | e) | What is the difference between PHEV and HEV? | CO2 | L1 |
|  | f) | What is hybrid traction? | CO2 | L1 |
|  | g) | What is drive system efficiency? | CO2 | L1 |
|  | h) | Classify different types of Induction motor? | CO3 | L2 |
|  | i) | Which energy storage system is having highest energy density among available batteries. | CO3 | L1 |
|  | j) | Compare Battery based energy storage vs Super Capacitor based energy storage. | CO3 | L2 |
| **Unit -I** | | | | |
| 2. |  | Explain the impact of modern Electric Vehicles Over Conventional Vehicles. | CO1, L2 | 10M |
| **(OR)** | | | | |
| 3. |  | Discuss the mathematical modeling to describe the performance of the vehicle. | CO1, L2 | 10M |
| **Unit -II** | | | | |
| 4. |  | Explain in detail about power flow control in hybrid drive-train topologies. | CO2, L2 | 10M |
| **(OR)** | | | | |
| 5. |  | Analysis the fuel efficiency of electric drive-train topologies. | CO2, L4 | 10M |
| **Unit -III** | | | | |
| 6. |  | Explain in detail about various electric components used in electric vehicles. | CO3, L2 | 10M |
| **(OR)** | | | | |
| 7. |  | Discuss about the configuration and control of DC Motor drives. | CO3, L2 | 10M |
| **Unit -IV** | | | | |
| 8. |  | Explain in detail about classification of different energy management strategies. | CO4, L2 | 10M |
| **(OR)** | | | | |
| 9. |  | Discuss about Battery based energy storage with its analysis. | CO4, L2 | 10M |

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