PVP 20

Code: 20EE4702B

IV B.Tech - I Semester – Regular / Supplementary Examinations
OCTOBER 2024

ELECTRICAL VEHICLES
(ELECTRICAL & ELECTRONICS ENGINEERING)

Duration: 3 hours Max. Marks: 70

Note: 1. This paper contains questions from 5 units of Syllabus. Each unit carries 14 marks and have an internal choice of Questions.
2. All parts of Question must be answered in one place.

BL – Blooms Level CO – Course Outcome

			BL	CO	Max. Marks
UNIT-I					
1	a)	Discuss the history of electric vehicles.	L3	CO1	7 M
	b)	Explain the concept of vehicle resistance acting on electric vehicle.	L4	CO2	7 M
OR					
2	a)	Analyze the dynamic equation of electric vehicle.	L4	CO3	7 M
	b)	Explain the braking performance of vehicles.	L3	CO1	7 M
UNIT-II					
3	a)	Illustrate the possible electrical vehicle configurations.	L3	CO3	7 M
	b)	Explain the traction motor characteristics of electrical vehicles.	L4	CO2	7 M

OR					
4	a)	Demonstrate concept of tractive effort in normal driving.	L3	CO3	7 M
	b)	Illustrate the vehicle performance characteristics required for electrical vehicles.	L3	CO2	7 M
UNIT-III					
5	a)	Demonstrate the working of Hybrid electric drive train systems.	L4	CO3	7 M
	b)	Explain the operating modes of series hybrid drive train systems.	L4	CO4	7 M
OR					
6	a)	Illustrate the classification of hybrid electric vehicles.	L3	CO3	7 M
	b)	Explain the operating modes of parallel hybrid drive train systems.	L4	CO4	7 M
UNIT-IV					
7	a)	Explain the operating principle of Fuel cell system.	L4	CO2	7 M
	b)	Demonstrate Fuel and Oxidant Consumption in fuel cell.	L3	CO2	7 M
OR					
8	a)	Explain fuel supply system in fuel cell.	L4	CO2	7 M
	b)	Discuss any two fuel cell technologies available.	L3	CO3	7 M

UNIT-V					
9	a)	Illustrate basic concept of electro chemical batteries.	L4	CO4	7 M
	b)	Explain the electrical performance of ultracapacitors.	L3	CO5	7 M
OR					
10	a)	Explain the terms specific energy and energy efficiency in batteries.	L4	CO4	7 M
	b)	Illustrate the operation Principles of Flywheels.	L3	CO5	7 M