

CBCS SCHEME

USN

22MAR/MIA325

Third Semester M.Tech. Degree Examination, Dec.2023/Jan.2024 Electric Vehicles

Time: 3 hrs.

Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.*

Module – 1			M	L	C
Q.1	a.	Explain the path way history of Electric vehicles.	10	L1	CO1
	b.	Illustrate the need and Electric drive? Explain.	10	L2	CO1
OR					
Q.2	a.	Describe Electric vehicle concept and key technologies.	10	L2	CO1
	b.	List out the major drawback of electric vehicles.	10	L1	CO1
Module – 2					
Q.3	a.	Explain the following : i) Conductors ii) Insulators iii) Resistors iv) Solenoids.	10	L2	CO2
	b.	With neat sketch, explain construction and operation of AC motor.	10	L2	CO2
OR					
Q.4	a.	Explain operation of DC Generator with neat sketch.	10	L2	CO2
	b.	Describe weight and size parameters and performance parameters in electric vehicles.	10	L2	CO2
Module – 3					
Q.5	a.	Explain the major components of battery operated electric vehicle with neat layout.	10	L3	CO2
	b.	Compare/List out the Difference between BOEV and IC engine vehicles.	10	L3	CO2
OR					
Q.6	Briefly explain :				
	a.	Flywheel energy storage	5	L1	CO1
	b.	Inverter/Braking	5	L2	CO2
	c.	Regenerative braking	5	L1	CO1
	d.	Basic diagnosis and precautions of EV.	5	L2	CO1
Module – 4					
Q.7	a.	Explain construction and working of lead Acid battery with neat sketch.	10	L	CO
	b.	Illustrate the neat Diagram; explain lithium-ion and Lithium-polymer battery.	10	L	CO

OR					
Q.8	a.	Explain the working of High Discharge capacitor.	10	L2	CO2
	b.	Describe construction and working and Nickel cadmium battery with neat sketch.	10	L2	CO2
Module - 5					
Q.9	a.	Explain Phosphoric Acid fuel cell with neat sketch.	10	L3	CO2
	b.	With the help of sketch, explain proton exchange membrane fuel cell.	10	L3	CO2
OR					
Q.10	a.	Explain the working of i) Solid oxide fuel cell ii) Reformers.	10	L2	CO2
	b.	Write a short note on : i) Fuel cell electric vehicles ii) Hydrogen fuel cell.	10	L3	CO2
