Important Note: 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. 2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

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CRES SULIME

SUSTINES SUSTINES			
USN			18AU754
	-	Seventh Semester B.E. Degree Examination, Jan./Feb. 2023	
Introduction to Electric Vehicles			
Tin	1e. (3 hrs. Max. M	arks: 100
Note: Answer any FIVE full questions, choosing ONE full question from each module.			
		Module-1	
1	a.	Explain past 30 years development in electric vehicles. Also explain present	and future
		trends in electric vehicles.	(12 Marks)
	b.	Why there is need of electric drive? Explain.	(08 Marks)
•	_	OR Finals in a singular polytophy of alcothical visiting and in the singular polytophy of alcothical visiting and alcoholic visiting and	(0/ MI)
2	a. b.	Explain engineering philosophy of electrical vehicles. Describe EV concept and key EV technologies.	(06 Marks) (08 Marks)
	c.	Mention major issues of electric vehicles.	(06 Marks)
	٥.	A desired major issues of electric vehicles.	(oo manks)
		Module-2	
3	a.	Explain the following:	
		i) Conductors	
		ii) Insulators	
		iii) Resistors	
	L.	iv) Solenoids With most elected available struction and anaestic of AC mater	(12 Marks)
	b.	With neat sketch, explain construction and operation of AC motor.	(08 Marks)
		OR	
4	a.	Explain operation of DC generator with neat diagram.	(10 Marks)
	b.	Describe weight and size parameters and performance parameters in electric vehic	
			(10 Marks)
_		Module-3 Evaluation assumes that the second allocation values with most levent	(10 M - 1)
5	a. b.	Explain major components of battery operated electric vehicle with neat layout. Compare BOEV with IC engine vehicle.	(12 Marks) (08 Marks)
	υ.	Compare BOE v with the engine vehicle.	(vo marks)
	1	OR	
6	G	Write short notes on:	
	a.	Flywheel energy storage	
	b.	Inverter / Braking	
	c.	Regenerative braking	
	d.	Basic diagnosis and precautions of EV.	(20 Marks)
Modulo 4			
7	a.	Module-4 Explain construction and working of lead-acid battery with neat sketch.	(10 Marks)
,	a. b.	With neat sketch, explain lithium-ion and lithium-polymer battery.	(10 Marks)
	Ÿ.	Polymor duniely.	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
		OR	

Describe construction and working of Nickel Cadmium and Nickel – Metal hydride battery with neat sketch. (12 Marks) (08 Marks)

b. Write short note on High Discharge Capacitor.

Module-5

Explain construction and working of alkaline fuel cell with neat sketch. (08 Marks) 9 With neat sketch, explain proton exchange membrane fuel cell. (06 Marks)

Explain Phosphoric acid fuel cell with neat sketch.

(06 Marks)

Explain the following: 10

Solid oxide fuel cell

b. Hydrogen Storage Systems

Reformers

Fuel Cell Electric Vehicle.

(20 Marks)