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CBCS SCHEME

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Achary	stitute &	Technology		1 2 2

18EE752

Seventh Semester B.E. Degree Examination, Feb./Mar. 2022 **Electric Vehicle**

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

		and 11, 2 full questions, choosing ONE full question from each mo	dule.
1	a.	What are Flectric Vehicles? I it do 6	
•	u.	What are Electric Vehicles? List the features of electric vehicles along wit perspective diagram.	h top level
	b.		(10 Marks)
	c.	The state of the s	(06 Marks)
	٠.	Define: (i) Tractive force (ii) Road load force	(04 Marks)
		OR	
2	a.	Describe the laws of motion also mention power for i th torque.	24 8 8 8 8 8 8
	b.	With equation, explain constant and non-constant F_{TR} on level road.	(10 Marks)
		The same and non constant Tig on level toad.	(10 Marks)
		Module-2	
3	a.	Explain components of conceptual illustration of general EV configuration.	(10 Marks)
	b.	With the sketch, explain traction motor characteristics.	(10 Marks)
			(201124115)
4	a.	OR	
7	b.	Explain the classification of hybrid electric vehicles.	(10 Marks)
	U.	With a neat sketch, explain configuration of a parallel hybrid electric drive train.	(10 Marks)
		Module-3	
5	a.	Explain components of a battery cell with neat diagram.	
	b.	List the major types of rechargeable batteries considered for EV and HEV.	(10 Marks)
	C.	Define battery pack and its significance.	(06 Marks)
		Define outlery pack and its significance.	(04 Marks)
		OR	
6	a.	With equations and sketch explain lead acid battery cell charge and discharge ope	ration
	1.	X.	(10 Marks)
	b.	List the fuel cell types.	(06 Marks)
	C.	Write a note on super capacitors used as energy source in EV.	(04 Marks)
		Modulo 4	
7	a.	Explain the functional block diagram of a typical electric propulsion system.	
15	b.	With the equations, explain basic operation principle of induction motor.	(10 Marks)
	100.5	the equations, explain basic operation principle of induction motor.	(10 Marks)
		OR	
8	a.	Explain the advantages and disadvantages of BLDC motor.	(10 Marks)
	b.	With the block diagram, explain Switched Reluctance Motor drives.	(10 Marks)
		Witness Co.	(10 1111113)
9		Module-5	
9	a.	Explain the configuration of a typical series hybrid electric drive train.	(10 Marks)
	b.	With the block diagram, explain overall control scheme of the parallel hybrid drive	e train.
			(10 Marks)
10		OR	
10	a.	Explain the configuration of the parallel torque-coupling hybrid drive train.	(10 Marks)
	b.	Explain the energy storage design.	(10 Marks)

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.