Karunya UNIVERSITY

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

Reg.No. _____

End Semester Examination – Nov/Dec - 2016

Semester : 2016-17 ODD

Code : 12EE252

Duration : 3 hrs

Sub. Name : BASICS OF ELECTRIC AND HYBRID VEHICLE

Max. marks : 100

Q. No.	Questions	Course outcome	Marks
	PART-A(10X1=10 MARKS)		
1.	List the advantages of hybrid electric vehicle.	CO2	(1)
2.	Write any two applications of Super capacitors.	CO3	(1)
3.	_____ battery uses hydrogen, absorbed in metal hydride, for the active negative electrode	CO2	(1)
4.	Write the applications of lithium battery.	CO3	(1)
5.	_____ is used for converting the solar energy into electrical energy.	CO1	(1)
6.	_____ is a contactless power supply system that would allow electrical energy to be safely supplied to the vehicles without any mechanical contact.	CO2	(1)
7.	Slip is defined as _____ ..	CO2	(1)
8.	Write the advantages of induction motor.	CO2	(1)
9.	Mention any one criterion to choose the tires.	CO2	(1)
10.	Write the purpose of a power steering.	CO2	(1)

	PART B(5 X 3= 15 MARKS)		
11	Draw the basic block diagram of an electric vehicle.	CO2	(3)
12	Define Specific power.	CO2	(3)
13	Briefly explain about supply rails.	CO3	(3)
14	Write the role of converters in EV?	CO3	(3)
15	Write the principles of refueling.	CO3	(3)

		PART C(5 X 15= 75 MARKS)		
16.	a.	Explain about the history of Electric and Hybrid electric vehicle in detail.	CO2	(15)
		(OR)		
17.	a.	Discuss in detail about battery electric vehicle	CO2	(8)
	b.	Explain the working principle of solar powered vehicle	CO1	(7)
18.	a.	With neat diagrams explain about the working of Lead acid batteries.	CO3	(15)
		(OR)		
19.	a.	Explain with a neat diagram the working of Lithium based batteries.	CO3	(15)
20.	a.	Describe how the Flywheels and super capacitors are helpful in recovering energy during braking of EV.	CO3	(15)
		(OR)		
21.	a.	Explain the working principle of Hydrogen Fuel cells and thereby explain the different hydrogen storage methods.	CO1	(15)
22.	a.	Explain with a neat diagram the construction and working principle of switched reluctance motors.	CO2	(15)
		(OR)		
23.	a.	With the help of a neat diagram,explain the construction and working principle of BLDC motors.	CO2	(15)

24.	a.	Discuss in detail about electric vehicle recharging and refueling system .	CO3	(15)
		(OR)		
25.	a.	Explain in detail the requirement of heating and cooling system in an EV.	CO3	(15)

ALL THE BEST