

Program: BE Electrical Engineering

Curriculum Scheme: Revised 2012

Examination: Final Year Semester VIII

Course Code: EEE802 and Course Name: Electric and Hybrid Vehicle Technology

Time: 1 hour

Max. Marks: 50

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Note to the students:- All the Questions are compulsory and carry equal marks .

Q1.	In battery electric vehicle, the mechanical power to wheels is supplied by
Option A:	ICE engine
Option B:	Electric motor
Option C:	Both ICE engine and electric motor
Option D:	Battery
Q2.	For a lithium battery cell, the minimum discharge voltage is
Option A:	3.2 volts
Option B:	12 volts
Option C:	4.3 volts
Option D:	3.7 volts
Q3.	If a battery pack with lithium-ion cells to be used in EV is supposed to be rated for 370 volts, then the number of cells connected in series will be
Option A:	200
Option B:	100
Option C:	185
Option D:	31
Q4.	In a series hybrid electric vehicle, the power rating of electric motor is
Option A:	In the same range of on board Internal Combustion Engine (ICE)
Option B:	much higher than on-board ICE power capacity
Option C:	much lower than on-board ICE power capacity
Option D:	Is fixed and independent of ICE power capacity
Q5.	Use of solar PV (SPV) for EV battery charging station can be realized with
Option A:	Grid tied SPV system
Option B:	Standalone SPV system
Option C:	SPV in microgrid charging station
Option D:	SPV with wind energy integration
Q6.	In four wheeler EV, lead acid batteries are not preferred because:
Option A:	Charging of lead acid batteries is complex

Option B:	Energy density and power density is poor in lead acid batteries
Option C:	Operating temperature range in lead acid batteries is very limited
Option D:	lead acid batteries are costly
Q7.	Rolling resistance of the vehicle does not depend on
Option A:	Weight of the vehicle
Option B:	Vehicle tires
Option C:	Type of road
Option D:	Type of propulsion system used
Q8.	During _____ years, the EV sales significantly reduced because of ICE vehicles entry
Option A:	1910-1920
Option B:	2000-2010
Option C:	1970-1980
Option D:	2010-2020
Q9.	Which of the following is not used in Electric vehicles as a power plant
Option A:	Battery pack
Option B:	Electric generator
Option C:	Ultracapacitor
Option D:	Solar thermal system
Q10.	The typical value of Well to Wheel efficiency of ICE vehicle is
Option A:	20-30 percent
Option B:	10-13 percent
Option C:	5-10 percent
Option D:	30-40 percent
Q11.	The typical value of Well to Wheel efficiency of electric vehicle is
Option A:	30-40 percent
Option B:	70-80 percent
Option C:	20-25 percent
Option D:	15-20 percent
Q12.	Induction motor is preferred in EV manufacturing because it provides
Option A:	Highest efficiency
Option B:	Excellent torque-speed characteristics
Option C:	Highest power to weight ratio
Option D:	Robust motor due to matured technology
Q13.	In a series-parallel hybrid vehicle, ----- is used to couple the mechanical output to axel
Option A:	Differential gear
Option B:	Planetary gear
Option C:	Rotary gear
Option D:	clutch

Q14.	In series hybrid vehicles power trains, major propulsion power is derived from
Option A:	Fuel cell
Option B:	battery
Option C:	IC Engine
Option D:	Ultracapacitor
Q15.	The parallel HEV needs smaller capacity of electric motor because:
Option A:	Overall torque requirement of the vehicle is low.
Option B:	Weight of the vehicle is low.
Option C:	vehicle is designed for small power generation.
Option D:	the propulsion system is supplemented by ICE .
Q16.	In HEV, hybridization ratio (hybridness) refers to:
Option A:	(Power capacity of ICE/ Power capacity of electric motor used )
Option B:	Power capacity of electric motor / (Total Power capacity of ICE and electric motor )
Option C:	Power capacity of electric motor / Power capacity of ICE used
Option D:	Power capacity of ICE / (Total Power capacity of ICE and electric motor )
Q17.	Front wheel drive (FWD) vehicles is characterized by
Option A:	increased front tire wear
Option B:	increased weight
Option C:	improved weight distribution across the chassis
Option D:	more room to service the drivetrain
Q18.	In two wheeler EV, the typical battery voltage is
Option A:	100-200 Volts
Option B:	12-48 Volts
Option C:	2-12 Volts
Option D:	200-300 Volts
Q19.	In two wheeler EV, the typical battery capacity in Whrs is
Option A:	100-500
Option B:	1000-4000
Option C:	10000-20000
Option D:	10-20
Q20.	The public EV battery charging stations are of
Option A:	AC type only
Option B:	DC type only
Option C:	AC and DC both
Option D:	Energy storage based
Q21.	On board chargers of four wheeler EV is typically
Option A:	<1kW
Option B:	1-2 kW
Option C:	2 kW- 10 kW

Option D:	>20kW
Q22.	A series hybrid has Hybridness near the value of
Option A:	0
Option B:	0.75
Option C:	1
Option D:	0.5
Q23.	In the context of C rating , the EV Battery typically can be continuously charged at
Option A:	100 C
Option B:	200 C
Option C:	<1C
Option D:	50 C
Q24.	The drive cycle testing of EV is carried out to evaluate the
Option A:	Long term performance of vehicle
Option B:	EV electric motor performance
Option C:	Overall EV system performance with multiple stops, starts, acceleration and costing modes
Option D:	Short term performance of vehicle
Q25.	The DoD of the EV Lead acid battery is
Option A:	80 percent
Option B:	50 percent
Option C:	40 percent
Option D:	100 percent

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<b>Question</b>	<b>Correct Option (Enter either 'A' or 'B' or 'C' or 'D')</b>
Q1.	C
Q2.	A
Q3.	B
Q4	A
Q5	C
Q6	B
Q7	D
Q8.	A
Q9.	D
Q10.	B
Q11.	C
Q12.	D
Q13.	B
Q14.	C
Q15.	D
Q16.	B

Q17.	A
Q18.	B
Q19.	B
Q20.	C
Q21.	C
Q22.	D
Q23.	C
Q24.	C
Q25.	A