

SECTION-D

No. of Printed Pages : 4

221545B

Roll No.

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Draw the schematic of general configuration of electrical subsystem of an Electric Vehicle (EV) and a Hybrid Electric Vehicle (HEV).

Q.24 Define the PHEV (Plug-in Hybrid Electric Vehicle) and its components with diagram.

Q.25 What are the design and control of switched-mode power converters?

4th Sem./Branch : I & C

Subject : Electric Vehicles

Time : 3 Hrs.

M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 _____ Vehicles are powered by battery only.

- a) Conventional b) EV
- c) HEV d) PHEV

Q.2 What is the unit of charge capacity in a battery?

- a) Ahr b) W hr
- c) W/hr d) W/Ahr

Q.3 Which Battery are preferred for EV.

- a) Lead-Acid (Pb-acid)
- b) Lithium-Ion (Li-ion)
- c) Sodium-Sulphur (NaS)
- d) Nickel-Cadmium (NiCd)

Q.4 A traction inverter is a power electronic device that is used in electric and hybrid vehicles to convert the _____.

- a) DC to AC b) AC to DC
- c) DC to DC d) AC to AC

Q.5 Switched mode converters are.

- a) DC to AC Converter
- b) AC to DC Converter
- c) DC to DC Converter
- d) AC to AC Converter

Q.6 The hybrid electric vehicle is combination of

- a) IC Engine + Electric motor
- b) Only Electric motor
- c) NGV + Gasoline engine
- d) None of these

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Write the name of the basic components of Electric Vehicle.

Q.8 The Fuel Cell provides _____ energy but _____ power.

Q.9 What do you mean by the short circuit in a battery?

Q.10 Define the drive train in Electric Vehicle.

Q.11 What is the leakage current of a battery?

Q.12 Write the full form of PMBLDCM.

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 What are the Social & Environmental importance of Hybrid and Electric Vehicles.

Q.14 Define the main components of Hybrid Electric vehicle.

Q.15 What is state of charge (SOC) in battery?

Q.16 Write the working of electrochemical cell & charges on anode and cathode.

Q.17 What are the causes of battery explosion?

Q.18 Define the Indian Standards for DC Charging.

Q.19 Define the modelling of Electric Vehicle.

Q.20 What are the key components of Hybrid Electric Vehicle.

Q.21 What are the basics of Micro, Mild, and Mini EV.

Q.22 What is Fuel cell define it's working with diagram.