

Question Bank (K- Scheme) Unit Test II

Course: ELECTRIC VEHICLE TECHNOLOGY

Code: (315335)

Abbreviation - EVT

Semester: 5K

Program: EE

UNIT III: Batteries and Energy Storage Systems –PART II (08 M)

2 Marks Questions:

- 1) State the need of BMS
- 2) Why is it important to measure the self-discharge rate of battery?
- 3) State the limitations of lithium –ion battery.
- 4) Name the type of fuel cell that can generate maximum electricity.

4 Marks Questions:

- 5) Explain BMS with a neat labeled block diagram.
- 6) Differentiate between a fuel cell and a battery.

UNIT IV: Converters and EV Chargers (16 M)

2 Marks Questions:

- 7) State the need of power electronics in electric vehicles.
- 8) State the function of DC-DC converter in an EV.
- 9) State the meaning of trickle charging.
- 10) List the types of charging stations.
- 11) List the type of chargers for EV.

4 Marks Questions:

- 12) Describe V2B/V2H (Vehicle-to-Building/ Vehicle-to-Home) system of charging.
- 13) Find out the charging cycle time of a 30 kWh battery for EV car with an AC charger of 1.5kW. The battery's SOC for the moment of initial charging is 10.
- 14) State the meaning of V2X technology. Discuss its significance in the SMART GRID eco system.

- 15) State the meaning of DC fast charging. How is it different from AC charging.
- 16) Discuss the different types of DC-DC converters used in electric vehicle.
- 17) Draw and explain the working of Buck converter.
- 18) Estimate the charging time for ebus after 220 km of day running and having balance of 30% SOC. The battery is of 240kW and charging system is DC with 24Kw capacity.
- 19) Explain the functioning of wireless charging station.
- 20) Explain the charging methods of battery.

UNIT V: Electric Vehicle (EV) Policies (08 M)

2 Marks Questions:

- 21) State the main goal of the EV30@30 campaign.
- 22) Define the term 'E-Mobility Strategy.
- 23) List the partners of charging infrastructure development by Government of India.

4 Marks Questions:

- 24) Elaborate on the policy enforced for road tax and toll in Maharashtra state.

- 25) Explain the implementation structure and objectives of NEMMP 2020.
- 26) Compare the features of Maharashtra Electric vehicle Policy, 2021 V/s 2025 w.r.t objectives, demand incentives, scrappage incentives and charging infrastructure support.
- 27) Discuss any four challenges faced in the implementation of electric mobility in India.