Total No. of Questions – [3] Total No. of Printed Pages: 1

G.R. No.		PAPER CODE	U482-242B(ESE)

May 2022 (ENDSEM) EXAM

B. TECH. (SEMESTER - II)

COURSE NAME: Power Electronics & Electric Vehicles

COURSE CODE: ETUA40182B

(PATTERN 2018)

Time: [1Hr] [Max. Marks: 30]

(*) Instructions to candidates:

1) **Figures to the right indicate full marks.**
2) **Use of scientific calculator is allowed**
3) **Use suitable data where ever required**

Q.1 a) Discuss and Justify the need of bidirectional converters in Electric Vehicle Drives [4]

b) Justify for what reasons you will prefer inverter drives, though it needs DC-AC conversion and associated power loss [6]

Q. 2 **OR**

a) Why only Active power converters are employed in all EVs, though dissipative ways are cheaper for system building [4]

b) Braking in EVs is always not re-generative. Illustrate the scenario with diagram and discuss when this power loss is inevitable. [6]

Q.3 a) "Harmonics cannot be completely eliminated, can be reduced only", opine and justify your opinion [4]

b) How Torque-Speed Characteristics plays major role in selection of motor for EV. Explain the significance [6]

OR

Q. 4 a) Justify the statement " Drivetrain plays major role in vehicle efficiency" mention contribution of different components in loss of energy [4]

b) Compare and rank different control methods for BLDC control motors used in EV [6]

Q.5 a) How Master- Slave control is superior to other topologies of BMS. [4]

b) "Charging stations will be attracting next generations food malls on highways", Argue on the statement [6]

OR

a) Driving range dilemma is main obstacle in EV sales, opine and argue [4]

Q.6 b) Will electrical vehicles will really help reducing CO2 Emission, debate on the point [6]