

Total No. of Questions – [3]

Total No. of Printed Pages: 1

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May 2022 (ENDSEM) EXAM**B. TECH. (SEMESTER - II)****COURSE NAME: Power Electronics for 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

Que No.	Question Description	Marks	CO mapped	BT Level
Q.1	a) Discuss and Justify the need of bidirectional converters in Electric Vehicle Drives	[4]	CO2	4 Analyse
	b) Justify for what reasons you will prefer inverter drives, though it needs DC-AC conversion and associated power loss	[6]	CO4	5 Evaluate
	OR	[4]	CO2	3 Apply
Q. 2	a) Why only Active power converters are employed in all EVs, though dissipative ways are cheaper for system building	[6]	CO4	4 Analyse
	b) Braking in EVs is always not re-generative. Illustrate the scenario with diagram and discuss when this power loss is inevitable.			
Q.3	a) "Harmonics cannot be completely eliminated, can be reduced only", opine and justify your opinion	[4]	CO4	4 Analyse
	b) How Torque-Speed Characteristics plays major role in selection of motor for EV. Explain the significance	[6]	CO2	5 Evaluate
	OR			
Q. 4	a) Justify the statement " Drivetrain plays major role in vehicle efficiency" mention contribution of different components in loss of energy	[4]	CO3	4 Analyse
	b) Compare and rank different control methods for BLDC control motors used in EV	[6]	CO3	5 Evaluate
Q.5	a) How Master- Slave control is superior to other topologies of BMS	[4]	CO3	2 Understand
	b) "Charging stations will be attracting next generations food malls on highways", Argue on the statement	[6]	CO3	6 Create
	OR			
Q.6	a) Driving range dilemma is main obstacle in EV sales, opine and argue	[4]	CO1	5 Evaluate
	b) Will electrical vehicles will really help reducing CO2 Emission, debate on the point	[6]	CO1	5 Evaluate