

							Printed Page: 1 of 1						
	Subject Code: KOE090												
Roll No:													

## BTECH (SEM VIII) THEORY EXAMINATION 2021-22 ELECTRIC VEHICLES

Time: 3 Hours Total Marks: 100

**Notes:** 

- Attempt all Sections and Assume any missing data.
- Appropriate marks are allotted to each question, answer accordingly.

Q1(a) Define IC engine. Q1(b) What do you mean by arial flux? Q1(c) Define BESS. Q1(d) What is do you mean by OCPP? Q1(e) Define Power Grid. Q1(f) Explain on-board charging. Q1(g) What is cell balancing? Q1(h) What do you understand by DC-DC convertor? Q1(i) Define BLDC. Q1(j) What is aggregator?  SECTION-B Attempt ANY THREE of the following Questions Marks (3X10=30) CO Q2(a) Discuss the basic components and architecture of an Electric Vehicle. Q2(b) What is EV motor? Discuss the classification of EV motors with the applications. Q2(c) Define battery. Discuss the various characteristics of the following batteries: (i) Lead Acid Batteries, (ii) Lithium Batteries. Q2(d) Write a note on the various important design considerations for a charging system. Q2(e) What do you mean by the scheduling of Energy Generation? Discuss.  SECTION-C Attempt ANY ONE following Question Marks (1X10=10) CO Q3(a) Write a note on the recent trends and developments in Electric Vehicles. Q3(b) Discuss in detail the comparison of Electrical Vehicles and IC engine Vehicles.  SECTION-C Attempt ANY ONE following Question Marks (1X10=10) CO Q4(a) What are power electronics convertors? Discuss in detail with suitable diagram. Q4(b) Discuss the BLDC motor driving scheme.			
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Q5(a) Write a note on the following: (i) UN38 regulation familiarity, (ii) Mechanical and	Q5(a) Write a no	te on the following: (i) UN38 regulation familiarity, (ii) Mechanical and	
reliability aspects of Li Ion packs.	reliability	aspects of Li Ion packs.	
Q5(b) Discuss about the energy storage system in detail.			
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SECTION-C Attempt ANY ONE following Question Marks (1X10=10) CO O(a) Write a note on the following: (i) AC and DC charging. (ii) Computing requirements	Q5(b) Discuss al		66

SECT	TION-C Attempt ANY ONE following Question Marks (1X10=10		CO			
Q6(a)	Write a no	te on the following: (i) AC and DC charging, (ii) Co	omputing requirements			
	in a charging system.					
Q6(b)	What is hi	gh power charger? Discuss the internal major block	diagrams and			
	subsystem	s of a high-power charger.				

SECTION-C Attempt ANY ONE following Question	Marks (1X10=10)	CO			
Q7(a) How the energy storage integration into micro-grid is accomplished? Discuss.					
Q7(b) Discuss the role of AI for EV ecosystem.					