PAPER ID-420315

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.*

SECTION-A	Attempt **All** of the following Questions in brief	Marks **(10X2=20)**	**CO**
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.		

SECTION-C	Attempt **ANY ONE** following Question	Marks **(1X10=10)**	**CO**
Q5(a)	Write a note on the following: (i) UN38 regulation familiarity, (ii) Mechanical and reliability aspects of Li Ion packs.		
Q5(b)	Discuss about the energy storage system in detail.		

SECTION-C	Attempt **ANY ONE** following Question	Marks **(1X10=10)**	**CO**
Q6(a)	Write a note on the following: (i) AC and DC charging, (ii) Computing requirements in a charging system.		
Q6(b)	What is high power charger? Discuss the internal major block diagrams and subsystems 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.		