

**GIET UNIVERSITY, GUNUPUR - 765022**

B. Tech (Sixth Semester Regular) Examinations, May - 2024

21BELPE36002 / 22BEEPE36001**Battery Management Systems and Charging Stations
(EE & EEE)**

Time: 3 hrs

Maximum: 70 Marks

(The figures in the right hand margin indicate marks)**PART – A****(2 x 5 = 10 Marks)**Q.1. Answer **ALL** questions

- Explain the difference between primary cells and secondary cells.
- Explain how the positive and negative terminals of a battery are identified.
- Primary batteries are being disposed of for what reasons?
- What is BMS? Why is it necessary for electric vehicles?
- Explain the various factors that contribute to cell imbalance.

CO #	Blooms Level
CO1	K4
CO2	K4
CO3	K5
CO4	K2
CO3	K4

PART – B**(15 x 4 = 60 Marks)**Answer **ALL** questions

Marks	CO #	Blooms Level
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- Enumerates the importance of BMS to the society. 7 CO1 K4
 - Determine the difference between the primary and secondary cells. 8 CO1 K4
- (OR)
- What are the benefits of battery management systems? 8 CO1 K4
 - Write short notes Reserve Cell. 7 CO1 K4
- Explain the process of discharging and charging a Li-ion battery using characteristic curves. 8 CO2 K4
 - What are the consequences of overcharging and how can it be avoided? 7 CO2 K4
- (OR)
- Explain how a series-parallel combination affects the capacity of a battery bank. 7 CO2 K4
 - Explain how a lead-acid battery is charged and discharged. Also, describe the process using characteristic curves. 8 CO2 K4
- Explain the following types of vehicles briefly - EVs, HEVs, PHEVs, and EREVs. 7 CO3 K2
 - Provide a diagram that explain the different types of battery topology used in vehicles. 8 CO3 K2

(OR)

- Explain various types of battery topologies used in vehicles using diagrams. 7 CO3 K2
- Explain the BMS Functional Requirements using the appropriate block diagram. 8 CO3 K2
- Explain the working process DC charging system with necessary block diagram and what are the drawbacks of DC charging system. 7 CO4 K2
- Write a short note on Domestic Charging Infrastructure and Fast Charging Station. 8 CO4 K2

(OR)

- Write short notes and move and charge zones and fast charging station. 7 CO4 K2
- Differentiate between domestic and public charging infrastructures. 8 CO4 K2

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