BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: M.TECH. **SEMESTER : II**
BRANCH: EVT **SESSION : SP/2023**

SUBJECT: EE547 BATTERY MANAGEMENT SYSTEM

TIME: 3 Hours **FULL MARKS: 50**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Before attempting the question paper, be sure that you have got the correct question paper.**
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

			CO	BL
Q.1(a)	Define: Electrical Cell, C-Rating, Nominal Voltage, Cell Capacity, and Specific Energy of battery	[5]	1	1
Q.1(b)	Describe the process of electron transfer using Reduction-Oxidation Reaction in case of Li battery	[5]	1	1
Q.2(a)	Classify different functionalities of battery.	[5]	2	2
Q.2(b)	Explain role of multiplexer for voltage sensing unit in Battery Management System.	[5]	2	2
Q.3(a)	Apply equivalent circuit model based approach to model diffusion event in Lithium battery.	[5]	3	3
Q.3(b)	Apply equivalent circuit model based approach to model hysteresis event in Lithium battery.	[5]	3	3
Q.4(a)	Distinguish between cyclic aging and calendar aging in a battery.	[5]	4	4
Q.4(b)	Analyze accuracy of SOC estimation using physics based approach for a battery.	[5]	4	4
Q.5(a)	Design Serial-Port Interface between two microcontroller using block diagram.	[5]	5	5,6
Q.5(b)	Design Daisy Chain Communication between multiple microcontrollers using block diagram.	[5]	5	5,6

:::::18/07/2023:::::