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**PRESIDENCY UNIVERSITY
BENGALURU**

SCHOOL OF ENGINEERING

MAKE UP EXAMINATION – JAN 2023

Course Code: EEE3036

Course Name: Battery Management Systems

Program & Sem: B.Tech

Date: 24-01-2023

Time: 1:00 pm to 04:00 pm

Max Marks: 100

Weightage: 50 %

Instructions:

- (i) Read all questions carefully and answer accordingly.
(ii) All of you should bring your calculator

Part A [Memory Recall Questions]

Answer all the Questions. Each question carries ten marks.

(4Qx 10M= 40M)

1 Describe State of Charge, State of Health, C-Rate, and DoD in the battery management system.

(C.O.No.1) [Knowledge]

2 State in detail four methods to estimate SoC

(C.O.No.1) [Knowledge]

3 Describe the factors affecting capacity Estimation? [10M]

(C.O.No.2) [Knowledge]

4 Identify the need of sensing the isolation in the battery management system.

(C.O.No.3) [Knowledge]

Part B [Thought Provoking Questions]

Answer all the Questions. Each question carries fifteen marks.

(2Qx15M=30M)

5 Mahesh disconnected his electric vehicle battery while going on vacation. After some days, he arrived and wants to reconnect the battery installed in his electric vehicle. State the procedures to connect the terminals of the battery safely to the electric vehicle with a neat and clean diagram. (C.O.No.3) [Comprehension]

6 Mr. Piyush wants to apply serial bus communication to save copper wires in Electric Vehicle. Suggest any standard architecture with neat and clean diagram to send the data sequentially to communicate with other devices in BMS. (C.O.No.4) [Application]

Part C [Problem Solving Questions]

Answer the Question. The question carries thirty marks.

(1Qx30M=30M)

7. A 15 volts battery capacity of 600 Ah that is theoretically at 80 % SoC and depth of discharge of 50 %.

- (i) Find the charge stored.
(ii) Find the energy delivered to the load.
(iii) How much would be the charge stored by the battery if the battery capacity is reduced to 400 Ah and find the net reduction in charge?

(C.O.No.3) [Comprehension]