Roll No											

PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING
MID TERM EXAMINATION - APR 2023

Semester : Semester IV - 2021

Course Code : EEE3036

Course Name : Sem IV - EEE3036 - Discipline Elective - II: Battery Management Systems

Program : EEE

Date : 15-APR-202

Time : 9:30AM - 11AM

Max Marks : 50

Weightage : 25%

Instructions:
(i) Read all questions carefully and answer accordingly.
(ii) Question paper consists of 3 parts.
(iii) Scientific and non-programmable calculator are permitted.
(iv) Do not write any information on the question paper other than Roll Number.

PART A

ANSWER ALL THE QUESTIONS **(5 X 2 = 10M)**

1. ***Estimate the Charging Time for 200Ah battery would be _____ ? at real case condition.*** (CO1) [Knowledge]
   a) 5 hours
   b) 10 hours
   c) 15 hours
   d) 20 hours
2. List the components of a battery pack (CO1) [Knowledge]
   a) BMS, Cooling System, Anode, Cathode.
   b) Cooling System, Pouch cell, battery packaging, Electrolyte
   c) BMS, Pouch cell, cell Container, Cooling System.
   d) Cooling System, BMS, Battery packaging, Pouch Cell
3. ***Define One (1) Ah = _____?*** (CO1) [Knowledge]
   a) 1C
   b) 1200C
   c) 2400C
   d) 3600C
4. Recognize the batteries in Electric Vehicles? (CO1) [Knowledge]
   a) NiMH Batteries
   b) Li-Ion batteries
   c) Lead Acid batteries
   d) None of the above

5. ***In a single cell, the two electrodes are separated from each other by—***

a) 1mm (CO1) [Knowledge]

b) 1cm

c) 0.5mm

d) 0.5cm

PART B

ANSWER ALL THE QUESTIONS (2 X 10 = 20M)

6. Mr. Vasanth 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.

(CO2) [Comprehension]

7. Mr. Joy wants to adopt the IoT based logging of data of the Lithium ion battery through some application for his electric vehicle. Draw a neat diagram to explain the architecture of IoT based battery mnagement system in electric vehicle.

(CO2) [Comprehension]

PART C

ANSWER THE FOLLOWING QUESTION (1 X 20 = 20M)

8. 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? [10M]

(CO2) [Application]