



PRESIDENCY UNIVERSITY

BENGALURU

Roll No.														
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End - Term Examinations – MAY/ JUNE 2025

Date: 04-06-2025

Time: 01:00 pm – 04:00 pm

School: SOE	Program: B. Tech-ECE	
Course Code : EEE1005	Course Name: Electric Vehicles and Battery Technology.	
Semester: IV	Max Marks:100	Weightage: 50%

CO - Levels	C01	C02	C03	C04	C05
Marks	26	26	24	24	-

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks.

10Q x 2M=20M

1.	Outline the history of hybrid electric vehicle.	2 Marks	L1	C01
2.	Outline the major challenges facing implementation of hybrid and electric vehicle.	2 Marks	L1	C01
3.	Tabulate the limitations of electric vehicles when compared to petrol and diesel vehicles.	2 Marks	L1	C01
4.	List the requirements of Hybrid Electric Vehicle.	2 Marks	L1	C02
5.	Define the term tractive effort.	2 Marks	L1	C02
6.	Label the tractive effort and speed characteristics Curve.	2 Marks	L1	C02
7.	Mention energy storage requirements.	2 Marks	L1	C03
8.	Classify the lithium based batteries	2 Marks	L1	C03
9.	Define the term State of Charge.	2 Marks	L1	C04
10.	Identify the concept of Cell balancing in BMS.	2 Marks	L1	C04

Part B

Answer the Questions.

Total Marks 80M

11.	a.	Explain the configuration of EV converted from IC and its drawbacks.	10 Marks	L2	C01
Or					
12.	a.	Explain with a block diagram of Drive train three major subsystem.	10 Marks	L2	C01
Or					
13.	a.	Summarize the Varieties of possible EV configuration with diagram.	10 Marks	L2	C01
14.	a.	Explain the concept of Typical variable- speed electric motor characteristics.	10 Marks	L2	C01
Or					
15.	a.	Explain the architecture of hybrid electric drive train.	10 Marks	L2	C02
16.	a.	Explain the configuration of series hybrid electric drive train with a neat sketch.	10 Marks	L2	C02
Or					
17.	a.	Explain the configuration of parallel hybrid electric drive train with a neat sketch.	10 Marks	L2	C02
18.	a.	Explain the different configurations of parallel hybrid electric drive train.	10 Marks	L2	C02
Or					
19.	a.	Explain the components of a Battery Cell with construction diagram.	10 Marks	L2	C03
20.	a.	List the Major types of rechargeable batteries for EV/HEV and explain about Lead acid battery.	10 Marks	L2	C03
Or					
21.	a.	Explain about nickel cadmium battery(NiCd) and Nickel Metal hydride (NiMH) battery.	10 Marks	L2	C03
22.	a.	Explain the basic structure of Fuel Cell and its application.	10 Marks	L2	C03
Or					
23.	a.	Explain the block diagram of Battery Management System and importance of CAN communication.	10 Marks	L2	C04
24.	a.	Summarize the functions of Battery Management System.	10 Marks	L2	C04

25.	a.	Summarize the Applications of Battery Management System.	10 Marks	L2	C04
Or					
26.	a.	Classify the operation(Topology) of Battery Management System.	10 Marks	L2	C04