

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
B.Tech Degree S4 (Minor) Examinations April 2026 (2024 Admn)



Course Code: MNMUT409
Course Name: Energy Storage Devices

Max. Marks: 60

Duration: 2 hours 30 minutes

PART A

(Answer all questions. Each question carries 3 marks)

		CO	Marks
1	Define energy storage devices used in Electric Vehicles	CO1	(3)
2	What is the function of super capacitor	CO1	(3)
3	Define battery capacity (Ah)	CO2	(3)
4	List the advantages of Lithium-Ion batteries in EVs.	CO2	(3)
5	What is hybridization of energy storage devices?	CO3	(3)
6	What are the basic requirements of a battery charging system?	CO3	(3)
7	State the advantages of Fuel Cell Vehicles.	CO4	(3)
8	What are the different reforming methods used to extract hydrogen	CO4	(3)

PART B

(Answer any one full question from each module, each question carries 9 marks)

Module -1

9	a) Describe the working principle of Pneumatic Hybrid Engine Systems.	CO1	9
10	a) Explain the role of Hydraulic Pumps and Motors in hydraulic hybrid vehicles.	CO1	9

Module -2

11	a) Explain battery parameters used for evaluating EV battery performance	CO2	9
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- 12 a) Explain the construction and working of Lead acid batteries with the help of a sketch? CO2 9

Module -3

- 13 a) Explain the construction and working of Ultra Capacitors? CO3 9

- 14 a) Explain the construction, working and application of Flywheel energy storage device? CO3 9

Module -4

- 15 a) Explain the construction and working of Proton Exchange Membrane (PEM) fuel cell? CO4 9

- 16 a) Explain the layout and working of a Fuel Cell Vehicle with a neat diagram? CO4 9
