

Unit-II

S.No	Questions	BT	CO	PO
Part – A (Short Answer Questions)				
1	What is Electrical Energy Storage (EES)? Classify EES systems.	L1	CO2	PO1
2	Define Pumped Hydro Storage (PHS) and mention its efficiency range.	L2	CO2	PO2
3	What is Compressed Air Energy Storage (CAES)?	L1	CO2	PO1
4	List any four advantages of Flywheel Energy Storage (FES).	L2	CO2	PO2
5	Mention the advantages and disadvantages of Lead-Acid batteries.	L1	CO2	PO1
6	What are the key features of Lithium-Ion batteries?	L1	CO2	PO1
7	Define Redox Flow Battery (RFB).	L2	CO2	PO2
8	What is the role of an electrolyzer in a hydrogen energy storage system?	L3	CO2	PO3
9	What are Double-Layer Capacitors (DLCs)? Mention two applications.	L1	CO2	PO1
10	What is Superconducting Magnetic Energy Storage (SMES)? State its major advantage.	L1	CO2	PO1

Part – B (Long Answer Questions)

11	a)	Explain the classification of Electrical Energy Storage (EES) systems based on energy form. Discuss mechanical, electrochemical, chemical, electrical, and thermal storage systems with examples.	L5	CO2	PO3
12	a)	Describe the working principle, construction, advantages, disadvantages, and applications of Pumped Hydro Storage (PHS).	L2	CO2	PO1
13	a)	Explain the operation of Compressed Air Energy Storage (CAES). Discuss diabatic and adiabatic CAES along with their merits and limitations.			
	b)	Describe Flywheel Energy Storage (FES) systems. Explain their construction, working, characteristics, advantages, disadvantages, and applications.	L3	CO2	PO1
14		Explain different types of secondary batteries used in energy storage systems. Compare Lead-Acid, NiCd, NiMH, and Lithium-Ion batteries.	L2	CO2	PO2
15	a)	Discuss Sodium Sulphur (NaS) and Sodium Nickel Chloride (ZEBRA) batteries. Explain their construction, operation, advantages, and applications.	L3	CO2	PO2
	b)	Explain the concept of Flow Batteries. Differentiate between Redox Flow Batteries (RFB) and Hybrid Flow Batteries (HFB).	L4	CO2	PO2

16	a)	Discuss Hydrogen and Synthetic Natural Gas (SNG) as chemical energy storage systems. Explain their working, storage methods, advantages, and challenges.	L3	C02	PO1
		Explain Double-Layer Capacitors (DLC) and Superconducting Magnetic Energy Storage (SMES) systems. Compare their performance characteristics and applications.	L4	C02	P01