

**Unit-IV**

S.No	Questions	BT	CO	PO
<b>Part – A (Short Answer Questions)</b>				
1	What is the purpose of a Battery Management System (BMS)?	L2	C04	PO1
2	Define active power (P) and reactive power (Q) set-points in an EES system.	L2	C04	PO1
3	Why is compatibility between batteries and converters important in battery storage systems?	L1	C04	PO1
4	What is meant by local control in an Energy Storage System?	L2	C04	PO1
5	Give one example of an application that uses locally determined set-points.	L2	C04	PO1
6	What is a Virtual Power Plant (VPP)?	L2	C04	PO2
7	What is Battery SCADA?	L2	C04	PO1
8	Mention any two services provided by Battery SCADA.	L2	C04	PO1
9	What are Variable Energy Resources (VER)?	L1	C04	PO2
10	What is the significance of the “Duck Curve” in power systems?	L2	C04	PO2

**Part – B (Long Answer Questions)**

11	a)	Explain the management and control hierarchy of Energy Storage Systems (EES).	L3	C04	PO3
	b)	Describe the internal configuration of battery storage systems and the role of the Battery Management System (BMS).	L3	C04	PO3
12	a)	Explain the external connection of EES systems and discuss local and remote control schemes.	L4	C04	PO3
	b)	Discuss the concept of Virtual Power Plant (VPP) and the role of Energy Storage Systems in VPP operation.	L2	C04	PO3
13	a)	Explain the architecture and working principle of Battery SCADA for aggregation of dispersed batteries.	L2	C04	PO1
	b)	Discuss the growth of Variable Energy Resources (VER) and the increasing demand for Energy Storage Systems.	L2	C04	PO3
14		Explain the relationship between balancing services and Variable Energy Resources (VER) in modern power systems.	L2	C04	PO2
15	a)	Discuss various alternatives to Energy Storage Systems, including variable generator control, demand management, and market mechanisms.	L1	C04	PO1
	b)	Explain the management and control hierarchy of Energy Storage Systems (EES).	L2	C04	PO1
16	a)	Describe the internal configuration of battery storage systems and the role of the Battery Management System (BMS).	L4	C04	PO3
	b)	Explain the external connection of EES systems and discuss local and remote control schemes.	L5	C04	PO3