R18 Regulation *Subject code: 2O6BA*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech VI Semester Supplementary Examinations, November 2025

ENERGY STORAGE SYSTEMS

(EEE)

Maximum Marks: 70 Date:17.11.2025 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X2M=20 Marks)		Marks	CO	BTL
1	Define Power density and Energy density	2M	1	L1
2	How to mitigate Congestion in power grids?	2M	1	L1
3	Define round trip efficiency.	2M	2	L1
4	Define cycling capacity of energy storage system.	2M	2	L1
5	Give the classification of Chemical storage system	2M	3	L1
6	Write the applications of Redox flow battery?	2M	3	L1
7	Write the two main features of Double-layer capacitor?	2M	4	L1
8	Give the Technical comparison of EES technologies	2M	4	L1
9	Define Electric vehicles.	2M	5	L1
10	Define Smart grid, smart micro grid.	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Write a short note on Congestion in power grid and how to mitigate congestion?	10M	1	L2
	OR			
12	Explain the Characteristics of electricity and also explain how ESS can be useful during peak demand.	10M	1	L2
13	Write the various roles of electrical storage technologies from the viewpoint of a utility, consumers and generators of renewable energy.	10M	2	L2
	OR			
14	Explain the various problems in renewable energy installation and give their possible solutions with neat block diagram	10M	2	L2
15	Explain Pumped hydro storage system in detail with neat sketch.	10M	3	L2
	OR			
16	Explain the Lead acid battery (LA) in detail.	10M	3	L2
17	Explain Double-layer capacitor with neat diagram.	10M	4	L2

	OR			
18	Explain Superconducting magnetic energy storage (SMES) and write the Standards for EES?	10M	4	L2
19	Explain the Utility use (conventional power generation, grid operation & service of energy system.	10M	5	L2
	OR			
20	Write the New trends in applications of Energy storage system.	10M	5	L2