Regulation R18 Subject code: 2O6BA

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VI Semester Supplementary Examinations, February 2024

Energy Storage Systems

(EEE)

Maximum Marks: 70 Date:27.02.2024 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 which carries 10M.
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)		CO	Bloom Tx
1	What are the characteristics of electricity?	1	L3
2	What are the roles of EES?	1	L2
3	What is electrical smart grid?	2	L2
4	What is the role of EES from the view point of consumers?	2	L3
5	What are secondary batteries?	3	L2
6	Classify the Energy Storage Systems?	3	L2
7	What is meant by double layer Capacitors?	4	L3
8	What are the standards for EES?	4	L3
9	Give four applications of EES?	5	L2
10	Mention the applications of EES in UPS for large consumers?	5	L3

Part-B

Answer All the following questions. (5X10M=50Marks)			
11	A. What is the need for continuous and flexible supply? [5M] B. Explain about the long distance between generation and consumption of electric energy. [5M]	1	L3
	OR		
12	A. What is Congestion phenomena in power grids? [5M] B. How the congestion is eliminated during the peak load periods? [5M]	1	L3
13	What is the need for Electrical Energy Storage systems, explain in brief with four points? [10M]	2	L4
	OR		
14	A. What is the role of renewable energy systems in EES? [5M] B. How the load is distributed during the peak loads with the help of EES? [5M]	2	L4
15	A. Explain about the pumped hydro storage system with neat diagram. [5M] B. Derive the equation of the efficiency of pumped hydro storage system? [5M]	3	L4
	OR		
16	A. What is the difference between primary and secondary batteries? [5M]	3	L3

	B. What is the difference between diabetic and adiabetic process? [5M]		
17	A. Classify the EES according to the medium used to store the energy? [5M] B. Explain about the thermal storage systems. [5M]	4	L4
	OR		
18	A. Compare the EES in terms of technical elements. [5M] B. Explain about the super conducting magnetic energy storage systems. [5M]	4	L4
19	A. How the renewable energy is connected to the EES for the storage and applications? [5M] B. Give the applications of EES in present day technology. [5M]	5	L3
	OR		
20	A. Give the difference between aggregating EES and distributed systems? [5M] B. What are the new trends in application in EES systems? [5M]	5	L4