



Regulation R18

Subject code:206BA

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VI Semester Supplementary Examinations, January 2023

Energy Storage Systems

(EEE)

Maximum Marks: 70

24-1-23

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)

- 1 What are the characteristics of electricity?
- 2 What are the roles of ESS?
- 3 What is meant by smart grid?
- 4 What is the role of EES from the view point of consumers?
- 5 What is meant by secondary batteries?
- 6 Classify the Energy Storage Systems?
- 7 What is meant by double layer Capacitors?
- 8 What are the standards for EES?
- 9 Give four applications of EES?
- 10 Mention the applications of EES in UPS for large consumers?

Part-B

Answer All the following questions.

(10MX 5=50Marks)

- 11 A. What is the need for continuous and flexible supply? [5]
B. Explain in brief about the long distance between generation and consumption? [5]
OR
- 12 A. What is meant by Congestion phenomena in power grids? [5]
B. How the congestion is eliminated during the peak load periods? [5]
- 13 A. What is the need for Electrical Energy Storage systems, explain in brief with four points? [5]
B. What is the role of EES from the view point of utility? [5]
OR
- 14 A. What is the role of renewable energy systems in EES? [5]
B. How the load is distributed during the peak loads with the help of EES? [5]
- 15 A. Explain about the pumped hydro storage system with neat diagram? [5]
B. Derive the equation of the efficiency of pumped hydro storage system? [5]
OR
- 16 A. What is the difference between primary and secondary batteries? [5]
B. What is the difference between diabatic and adiabatic process? [5]
- 17 A. Classify the EES according to the medium used to store the energy? [5]

B. Explain in brief about the thermal storage systems? [5]

OR

18 A. Compare the EES in terms of technical elements? [5]

B. Explain about the super conducting magnetic energy storage systems? [5]

19 A) How the renewable energy is connected to the EES for the storage and applications? [5]

B) Give the applications of EES in present day technology? [5]

OR

20 A) Give the difference between aggregating EES and distributed systems? [5]

B) What are the new trends in application in EES systems? [5]