



R18 Regulation

Subject code: 2E6BA

# TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

## B.Tech VI Semester Supplementary Examinations, July 2024

### ELECTRICAL ENERGY CONSERVATION AND AUDITING

(EEE)

Maximum Marks:70

Date:30.07.2024 Duration:3 hours

Note: 1.This question paper contains two parts A and B.

2. Part A is compulsory which carries 20marks. 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 10marks and may have a,b,c,d as sub questions.

#### Part-A

All the following questions carry equal marks

(10X2M=20Marks)

CO

BTL

1	How does energy production affect the environment?	CO1	L2
2	Give one objective of an energy strategy for the future.	CO1	L1
3	What is an electricity tariff?	CO2	L1
4	Define calorific value.	CO2	L2
5	Why is an energy audit necessary?	CO3	L2
6	What is demand side management in the context of energy?	CO3	L1
7	What is a demand charge in electricity billing, and why is it significant for industrial consumers?	CO4	L1
8	What are the main types of losses in transformers?	CO4	L2
9	What is one way to improve the efficiency of a compressed air system?	CO5	L2
10	List critical components of a compressed air system.	CO5	L2

#### Part B

Answer All the following questions.

(5X10M=50 Marks)

11	a) Describe the environmental impacts of energy production and consumption. [5M] b) What measures can be taken to minimize the environmental impact of energy production and use? [5M]	CO1	L3 L3
OR			
12	a) What is energy conservation? Why is it important for both developed and developing nations? [5M] b) Describe various methods of energy conservation in industrial, commercial, and residential settings. [5M]	CO1	L3 L3
13	Describe the importance of power factor improvement in electrical systems. Discuss the methods used to improve power factor [10M]	CO2	L3
OR			
14	a) Discuss the relationship between temperature and pressure in thermodynamic processes. [5M] b) Discuss the processes of evaporation and condensation in terms of energy transfer. [5M]	CO2	L3 L3

15	Discuss the concept of fuel and energy substitution in energy management. Explain the benefits. [10M]	CO3	L3
	OR		
16	Describe the concept of demand side management (DSM) and its role in energy management. [10M]	CO3	L3
17	Describe the concept of electrical load management and maximum demand control. Discuss the methods used to manage electrical loads and control maximum demand. [10M]	CO4	L4
	OR		
18	Analyze the criteria for selecting capacitors for power factor correction. [10M]	CO4	L4
19	Explain the different types of air compressors used in industrial applications. [10M]	CO5	L2
	OR		
20	Analyze various energy-efficient lighting control technologies and explain how each technology contributes to energy savings and improved lighting quality. [10M]	CO5	L4