

Roll No.

3744

**B. Tech. 8th Semester
(Electrical Engineering)
Examination – May, 2023**

ENERGY MANAGEMENT AND AUDITING

Paper : OEC-EE-414-G

Time : Three Hours]

[Maximum Marks : 75

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note: Attempt five questions in all, selecting one question from each Unit. Question No. 1 is compulsory. All questions carry equal marks.

1. (a) Define the term cogeneration. $3 \times 5 = 15$
- (b) What is meant by coefficient of performance ?
- (c) What are the direct and indirect benefits of waste heat recovery ?
- (d) List down the major energy audits instruments and its use.
- (e) What is meant by steam traps ?

UNIT - I

2. What do you understand by Energy Management ?
What are the objectives and energy policies of energy management ? 15
3. Explain organizational structure of energy management and various opportunities in lightning system. 15

UNIT - II

4. Explain the following : 15
 - (a) Components of Energy Audit
 - (b) Indoor Air Quality analysis in energy management
5. (a) List down the major energy audits instruments and its use. 7.5
- (b) Differentiate between simple payback period and net present value method. 7.5

UNIT - III

6. A paper manufacturing company has a contract demand of 5000 kVA with the power supply company. The average maximum demand of the plant is 3850 kVA/month at a power factor of 0.95. The maximum demand is billed at the rate of Rs. 500/kVA/month. The minimum billable maximum demand is 75% of the

contract demand. An incentive of 0.5% reduction in energy charges component of electricity bill is provided for every 0.01 increase in power factor over and above 0.95. The average energy charge component of the electricity bill per month for the plant is Rs. 20 lakhs. The plant decides to increase the power factor to unity by installing capacitor banks. Find the annual reduction in demand component charges and energy component charges ? Find the kVAR required to improve the power factor from 0.95 to unity ? 15

7. (a) Explain motor efficiency management and process of motor performance management. 7.5

(b) Explain how setting a lower evaporator temperature helps in reducing the power consumption of an air conditioning system ? List down any *three* energy saving measures in domestic air conditioning system. 7.5

UNIT - IV

8. Describe energy management in solar energy and wind energy. 15

9. Explain energy management opportunities in terms of renewable energy sources. 15

Roll No.

3736

**B. Tech. 8th Semester (Electrical Engg.)
Examination – May, 2023**

**ADVANCES IN POWER TRANSMISSION &
DISTRIBUTION**

Paper : PEC-EE-410-G

Time : Three hours]

[Maximum Marks : 75

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Question No. 1 is compulsory. Answer any one question from each of the remaining four Sections. All questions carry equal marks.

1. (a) Why we need optimal location of capacitor transmission line ?
- (b) How we can do the monitoring in distribution system ?
- (c) What is the difficulty if distribution system could not be restored ?
- (d) How power flow in radial distribution system ?
- (e) How we can control the load ?

3 × 5 = 15

SECTION – A

2. Explain the working principle of STATCOM. 15
3. How the dynamic stability enhanced using FACTS component ? 15

SECTION – B

4. Explain the layout of outdoor distribution system. 15
5. Explain the procedure to locate the optimal location of substation. 15

SECTION – C

6. Classify the configuration of distribution system. 15
7. Write down the algorithm for optimal placement of capacity in distribution system. 15

SECTION – D

8. Write down about the modern grid. 15
9. Write down the application of SCADA in distribution system. 15