

Code No: RT41024

**R13**

**Set No. 1**

**IV B.Tech I Semester Supplementary Examinations, February/March - 2018**

**ENERGY AUDIT CONSERVATION AND MANAGEMENT**

**(Open Elective)**

**Time: 3 hours**

**Max. Marks: 70**

*Question paper consists of Part-A and Part-B*

*Answer ALL sub questions from Part-A*

*Answer any THREE questions from Part-B*

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**PART-A (22 Marks)**

1. a) Explain the barriers in Energy Audit and how it can be overcome. [4]
- b) Define the terms w.r.t Lighting (i) Luminous efficiency and (ii) Candela [4]
- c) Explain the significance of Tong tester [4]
- d) Discuss various types of Electric water heating system [3]
- e) Explain the concept of present worth method [4]
- f) List the different types of depreciation methods [3]

**PART-B (3x16 = 48 Marks)**

2. a) List and enumerate the Goals of Energy Audit and where they can be applied. [8]
- b) Explain the different types of representations in Energy consumption. [8]
3. a) Explain in detail about Horizontal polar curve and Vertical polar curve [8]
- b) The table II shows the energy costs of a company using coke, gas and electricity. This company produces  $20 \times 10^3$  tonnes per annum. Calculate the Cost indices?

**Table II ENERGY COSTS**

Energy type	Consumption	Costs (\$)
Coke	$2.5 \times 10^3$ tonnes	$108.0 \times 10^3$
Gas	$22 \times 10^3$ therms	$3.6 \times 10^3$
Electricity	$3 \times 10^9$ Wh	$22.5 \times 10^3$
TOTAL		$134.1 \times 10^3$

[8]

4. a) Explain the effects of non-linear loads and harmonics on power factor of a motor and how they can be nullified. [8]
- b) Explain the principle of operation of Pyrometer with a neat sketch. [8]
5. a) List and explain the different types of Electric heating methods. [8]
- b) Explain the different energy conservation methods required for domestic buildings. [8]
6. a) Explain the merits and demerits of Energy efficient motors [8]
- b) What is time value of money and give its significance [8]
7. Discuss the different methods of return on investment analysis for energy projects with suitable example. [16]