

Total No. of Questions : 12]

SEAT No. :

P1403

[Total No. of Pages : 3

[4858] - 166

T.E. (Electrical) (Semester - II)

Energy Audit and Management

(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) *Answers to the two sections should be written in separate books.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *Use of logarithmic tables, slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.*
- 5) *Assume suitable data, if necessary.*

SECTION - I

- Q1)** a) Give important features of Energy Conservation Bill 2001. [8]
b) What are the adverse impacts of uncontrolled use of energy? What can be long term feasible solutions? [8]

OR

- Q2)** a) Give Indian Codes for Green Building. [8]
b) Discuss latest reforms in Indian Energy Sector. [8]

- Q3)** a) What is Supply Side Management? Explain few measures taken for improvement in energy sector. [9]
b) Explain implementation of DSM for commercial establishment, agricultural consumers and for residential consumers. [9]

OR

P.T.O.

- Q4)** a) Explain need of energy management. Also explain objectives and principles of successful energy management. [9]
- b) Explain with suitable example various wave shaping tools used in DSM for management of system. [9]

- Q5)** a) Explain steps in detailed energy audit. Also state importance of executive summary. [8]
- b) Explain least square method used in carrying out data analysis in energy audit. [8]

OR

- Q6)** a) Compare preliminary audit and detailed energy audit. [8]
- b) Explain cumulative sum method for carrying out energy analysis. [8]

SECTION - II

- Q7)** a) Find out internal rate of return for following investment [10]
Capital cost Rs. 20000/- Annual saving for five years are Rs. 4000, Rs. 4000, Rs. 5000, Rs. 5000 and Rs 7500 respectively.
- b) Explain following [8]
- i) Time value of money
 - ii) Apparent energy tariff

OR

- Q8)** a) Calculate net present values for investment of Rs. 50000 with cash flows generated for five years are Rs. 15000, Rs. 15000, Rs. 15000, Rs. 20000 and Rs. 20000. Take discounting factor as 10%. [9]
- b) i) Advantages and disadvantages of pay back period. [5]
- ii) Benefit to cost ratio and sensitivity analysis. [4]

Q9) a) Enlist various energy conservation techniques for air conditioning systems. [8]

b) Explain different waste heat recovery systems for energy improvements. [8]

OR

Q10) a) Explain energy conservation methods in pumping systems. What is effect of NPSH on performance of pump. [8]

b) Explain energy saving options in boilers and furnaces. [8]

Q11) a) Explain energy audit case study of steel mill. [8]

b) Explain energy audit energy saving options of T& D sector. [8]

OR

Q12) a) Give the details of energy audit carried out in IT industry. [8]

b) Share executive summary of energy audit carried out in paper and pulp industry. [8]

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