

Total No. of Questions : 12]

SEAT No. :

P3519

[5560]-169

[Total No. of Pages : 2

T.E. (Electrical)

ENERGY AUDIT & MANAGEMENT

(2012 Course) (Semester-II)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Neat diagrams must be drawn wherever necessary.*
- 2) *Figures to the right indicate full marks.*
- 3) *Your answers will be valued as a whole.*
- 4) *Use of logarithmic tables slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.*
- 5) *Assume suitable data, if necessary.*

Q1) Explain following in detailed: **[6]**

- a) Energy Intensity.
- b) Energy security.
- c) Energy conservation.

OR

Q2) Give salient features of Energy Conservation Act 2001. **[6]**

Q3) What is the energy policy? Explain format of energy policy with example. **[7]**

OR

Q4) What will be the role of finance department, personnel department and engineering department in energy management. **[7]**

Q5) Explain with examples how Supply Side Management can be used for managing electricity demand? **[7]**

OR

Q6) Explain with suitable diagram role of SCADA system in energy management. **[7]**

P.T.O.

- Q7)** a) Compare preliminary audit and detailed energy audit. What is A-B-C analysis? Explain with suitable example. [10]
b) Give typical format of energy audit reporting format. What is the importance of executive summary? [8]

OR

- Q8)** a) Explain the term plant energy performance. Also explain different benchmarks used in energy auditing. [8]
b) What are different techniques of data analysis? What is CuSum technique? How it is used for accessing energy saving potential? [10]

- Q9)** a) Enlist energy conservation opportunities in pumping system. Also explain flow control methods in pumping system. [8]
b) What are affinity laws for fans and blowers? How these are useful in energy conservation? Also explain process of performance assessment of fans. [8]

OR

- Q10)** a) Explain effect of unbalanced supply voltage on motor performance. Enumerate the effect of harmonics on operation of motor. [8]
b) State different losses taking place in boiler. Also suggest measures to reduce them. [8]

- Q11)** a) Justify economic feasibility of project by calculating net present value method based on following data. Initial investment of the project is Rs. 5 lacs and revenue generated for five years are as follows Rs. 1 lacs, Rs. 1.25 lacs, Rs. 2.4 lacs, Rs. 2.2 lacs and Rs. 1.5 lacs. Take discounting factor as 14%. [8]
b) Explain energy efficiency measures in transmission and distribution systems. [8]

OR

- Q12)** a) Explain break even analysis. Also explain internal rate of return. [8]
b) Discuss outcome of energy audit carried out in IT industry. [8]

