



May-June-2011
TE - Electrical
sem - II

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**T.E. (Electrical) (Semester – II) Examination, 2011
ENERGY AUDIT AND MANAGEMENT (New)
(2008 Pattern)**

Time : 3 Hours

Max. Marks : 100

- Instructions :**
- 1) Answer **any 3** questions from **each** Section.
 - 2) Answer **3** questions from **Section I** and **3** questions from **Section II**.
 - 3) Answers to the **two** Sections should be written in **separate** books.
 - 4) **Neat** diagrams must be drawn **wherever** necessary.
 - 5) **Black** figures to the **right** indicate **full** marks.
 - 6) Use of logarithmic tables, slide rule, Mollier charts, electronic pocket calculator and steam tables is **allowed**.
 - 7) Assume suitable data, if **necessary**.

SECTION – I

Unit – I

1. a) Explain salient features of Electricity Act 2003. 8
- b) Explain in detail long term policies of Govt. of India. 8

OR

2. a) Explain in detail various energy sources with examples : 8
 - i) Primary and secondary energy sources
 - ii) Conventional and non-conventional energy sources.
- b) What do you mean by energy security ? Explain few strategies to ensure energy security of our country. 8

Unit – II

3. a) Explain Demand Side Management concept with advantages and disadvantages. 8
- b) Explain the duties of Energy Manager and Energy Auditor. 8

OR

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4. a) What is Demand Side Management ? What are the different areas of development ? And what are the barriers of Demand Side Management ? 8
- b) Explain Energy Management term and general structure of Energy Management. 8

Unit – III

5. a) Explain step wise procedure to carry out detailed energy audit. 8
- b) Explain following techniques with their use for energy analysis : 10
- Sankey diagram
 - CUSUM technique.

OR

6. a) Explain the difference between internal and external bench-marking. What are the benefits of bench-marking energy performance ? 8
- b) Explain various instruments with function of each used to carry out energy audit. 10

SECTION – II

Unit – IV

7. a) Explain following financial analysis terms : 8
- Simple Pay Back Period
 - Return on Investment (ROI)
 - Internal Rate of Return (IRR)
 - Net Present Value (NPV).
- b) Write a short note on : 8
- TOD Tariff
 - ABT Tariff.

OR

8. a) What are the objectives of carrying out sensitivity analysis ? And what are the different factors that are considered for the sensitivity analysis ? 8
- b) Calculate simple pay back period and % Return on Investment (%ROI) for a project that cost Rs. 60 Lakhs and Rs. 5 Lakhs per year on an average to maintain and operate and is expected to save annually Rs. 20 lakhs. Comment on ROI whether to implement the project. 8



Unit – V

9. a) Explain various energy conservation opportunities in illumination and pumping system. 8
- b) Explain various heat recovery systems used in Boiler. 10

OR

10. a) Explain with advantages and disadvantages of various cycles of co-generation. 8
- b) Explain energy conservation opportunities in motive power applications. 10

Unit – VI

11. Explain energy audit case studies in following sector with various energy saving opportunities :
- i) Sugar Industry
- ii) Municipal Corporation. 16

OR

12. Explain energy audit case studies of following sector :
- 1) T & D sector
- 2) Agricultural sector. 16