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Reg. No. : .....

Name : .....

Sixth Semester B.Tech. Degree Examination, May 2012
(2008 Scheme)
08.606 Elective – II : ENERGY CONSERVATION AND MANAGEMENT (E)

Time : 3 Hours Max. Marks : 100

PART – A

Answer **all** questions.

1. Explain briefly the need for energy conservation.
2. What do you mean by energy-GDP coupling ?
3. What are the advantages of establishing energy data base ?
4. What do you mean by coefficient of performance ?
5. With the help of case studies, explain any two energy management opportunities in an HVAC system.
6. What are energy efficient motors ?
7. Explain briefly how energy consumption can be reduced in electrolysis ?
8. Explain how economic analysis of energy projects can be done using pay back period method ?
9. Explain briefly the use of computers in energy management.
10. Explain briefly what is DEFENDUS strategy. **(10×4=40 Marks)**

PART – B

Module – I

11. a) Explain the purpose of conducting energy audit. **5**
    b) What are the different levels of energy audit ? Explain. **10**
    c) What are the different instruments used for energy audit ? **5**

OR

P.T.O.

12. a) Explain the different phases in the process of planning an energy management program. 15

    b) Discuss the structure of an energy management committee in a production unit. 5

Module – II

13. With the help of case studies, explain the energy management opportunities in a process industry. 20

OR

14. With the help of case studies, how energy consumption can be reduced in lighting. 20

Module – III

15. An energy audit in a factory indicates that the total electrical consumption per year is Rs. 5.5×10^6. By replacing a few motors with energy efficient motors, a 15% saving in energy can be realised. The additional cost of energy efficient motors and their accessories is estimated as Rs. 4,25,000/- and the installation cost is Rs. 80,000/-. Assuming a 15 year life cycle, is the expenditure justifiable on a minimum return of 20%. Conduct an economic analysis using present value method. Determine also the pay back period. 20

OR

16. Write short notes on :
    i) Average rate of return method.
    ii) Life cycle costing approach.
    iii) Least cost power planning.
    iv) Co-generation of electricity. **(4×5=20 Marks)**
