

IV B.Tech II Semester Supplementary Examinations, Apr/May 2006

ENERGY MANAGEMENT

(Electrical & Electronic Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) List out the concepts of Energy management and show how it fits with the principles of Energy management. [10]
- (b) Discuss the various phases that exist in an energy management program [6]
2. (a) Discuss about the level of Responsibility in a company to conserve energy. [10]
- (b) Consider a company using three energy forms Oil, Gas and Electricity. The annual energy consumption is shown in table in various energy units find percentage energy balance. Assume
 $1 \text{ Joule} = 947 \times 10^{-6} \text{btu} = 238.8 \times 10^{-6} \text{calories} = 9.478 \times 10^{-9} \text{therm} = 2778 \times 10^{-6} \text{wh}$
 $1 \text{ Joule} = 5.6497 \times 10^{-9} \text{gal.}$

<u>Energy Type</u>	<u>Consumption</u>	
Oil	10×10^3 gal	
Gas	5×10^3 therm	
Electricity	995×10^3 kwh	[6]

3. (a) Briefly explain the importance of energy conservation [8]
- (b) List out the steps required for an energy conservation programme [8]
4. (a) Briefly explain the causes of low power factor. [6]
- (b) Explain energy efficient electric motors . [10]
5. Explain the functions of energy manager .
 Prepare a Questionnaire for conducting energy audit of a medium scale Industry of your choice. [16]
6. What is meant by time value of money?
 Calculate the depreciation rate using the Straight-line method, sum of years digit method for the asset with salvage value zero. Life of asset 5 years. Cost Rs 1,80,000. For decline balance method use 40% rate. [6+10]
7. What are the situations, which make the replacement of items necessary?
 The cost of a machine is Rs 6100 and its scrap value is only Rs.100.
 The maintenance cost are found from experience to be:

Year Maintenance:	1	2	3	4	5	6	7	8
Cost in Rs. :	100	250	400	60	900	1250	1600	2000

When should be the machine be replaced.

[8+8]

8. (a) Discuss the importance of planning and leading an energy management program in an organization.
- (b) Discuss the functions of an energy manager in initiating and managing an energy management program with particular reference to planning, Leading and controlling. [8+8]

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