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06EE763

Seventh Semester B.E. Degree Examination, December 2010

Energy Auditing and Demand Side Management

Time: 3 hrs. Max. Marks:100

Note: 1. ***Answer any FIVE full questions, selecting at least TWO questions from each part.***
2. Missing data may be suitably assumed.

PART – A

1 a. Discuss the energy scenario in the world and in India. **(12 Marks)**

b. Which are the issues addressed by the Energy Conservation Act, 2001? **(08 Marks)**

2 a. What is time value of money concept? What are the different cash-flow models? **(08 Marks)**

b. Explain the payback analysis. **(04 Marks)**

c. Calculate the depreciation rate using the (i) straight-line, (ii) sum-of-years digit and (iii) declining-balance methods, for the data given below:
Salvage value is Rs.0
Life of the equipment, n = 5 years
Initial expenditure, p = Rs.150000
For declining balance use a 200% rate. **(08 Marks)**

3 a. Give the ten methodology steps for detailed energy auditing and explain. **(10 Marks)**

b. What is energy use profile? What are the audits required for constructing the energy use profile? **(10 Marks)**

4 a. Draw the single line diagram for a typical A.C. power supply scheme and explain. **(10 Marks)**

b. What is depreciation? What are the causes for depreciation? **(05 Marks)**

c. What is plant energy performance (PEP)? Define the production factor. **(05 Marks)**

PART – B

5 a. What is tariff? What are the different types of tariff? **(10 Marks)**

b. A single phase motor connected to a 400 V, 50 Hz supply takes 31.7 A at a power factor of 0.7 lagging. Calculate the capacitance required in parallel with the motor, to raise the power factor to 0.9 lagging. **(10 Marks)**

6 a. What is ABT? What are the broad features of ABT design? **(10 Marks)**

b. What is demand side management (DSM)? What is the scope of DSM? How did the concept of DSM evolve? **(10 Marks)**

7 a. Explain the various steps in DSM planning and implementation. **(10 Marks)**

b. Explain peak clipping, vally filling and strategic energy conservation. **(10 Marks)**

8 a. Discuss tariff options for DSM. Which tariffs promote DSM? **(10 Marks)**

b. Explain the management and organization of energy conservation awareness programs. **(10 Marks)**

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