Question Paper Code : 6426

M.Sc. (Semester-II) Examination, 2018

RENEWABLE ENERGY

[Module REC-204]

(Energy Management)

Time : Three Hours] **[Maximum Marks : 70**

Note : Answer **five** questions in all. Question **No.1** is **compulsory.** Besides this, **one** question is to be attempted from each Unit.

1. Answer the following : [3x10=30]

   (a) State the elements of an energy management programme.

   (b) Write six responsibilities of energy managers.

   (c) Discuss the working of three audit instruments.

   (d) Define plant energy performance and production factor.

   (e) Explain the steps to be taken in energy action planning.

(f) State the elements of monitoring and targeting system

(g) Define cumulative sum (CUSUM).

(h) What is Combined Cycle Gas Turbine (CCGT) power plant ?

(i) State the forms of electric heat.

(j) How does the site, building envelope and building systems affect the energy management of a building ?

UNIT-I

2. Discuss the general principles of management in relation to relative cost, relative time to implement, relative complexity and relative benefits. [10]

3. Explain the basic principles of mass and energy balance. A solution of common salt in water is prepared by adding 20 kg of salt to 100 kg of water, to make a liquid of density 1323 kg/m^3 . Calculate the concentration of salt in this solution as a (a) weight fraction (b) weight/volume fraction (c) mole fraction (d) molar concentration. [10]

UNIT-II

4. What is the need of energy audit ? Describe the steps of preliminary audit and general audit. [10]

5. Explain the energy management (audit) approaches regarding understanding energy costs, benchmarking and energy performance and matching energy use to requirements. [10]

UNIT-III

6. What do you understand by institution of an energy policy in an organization ? How does the data collected and managed in an organization/company ? [10]

7. What is force field analysis in terms of positive forces and negative forces in an organization ? What are the benefits of recognizing achievements of energy management of employees in an organization/company? [10]

UNIT-IV

8. Discuss the energy management opportunities in lighting systems. How can you effectively use day-lighting ?[10]

9. Discuss the operational and maintenance, retrofit or modification and new design strategies as part of the principles for process energy management. [10]

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