

**GUJARAT TECHNOLOGICAL UNIVERSITY****M. E. - SEMESTER – II • EXAMINATION – WINTER • 2014****Subject code: 1722104****Date: 08-12-2014****Subject Name: Energy Conservation and Management****Time: 02:30 pm - 05:00 pm****Total Marks: 70****Instructions:**

- 1. Attempt all questions.**
- 2. Make suitable assumptions wherever necessary.**
- 3. Figures to the right indicate full marks.**

**Q.1** (a) What is co-generation? Classify the co-generation systems and explain topping cycle with suitable example and neat sketch. **07**

(b) Write note on Indian Energy scenario. **07**

**Q.2** (a) Discuss electricity saving techniques by category of end use. **07**

(b) Classify the energy audit and explain the three phases of detailed energy audit. **07**

**OR**

(b) Define: Computer controlled energy management. Explain with suitable example. **07**

**Q.3** (a) Define energy conservation with suitable example. **07**

(b) State and explain the factors that influence thermal performance of the buildings. **07**

**OR**

(a) Discuss methods to improve the thermal efficiency of thermal power plants. **07**

(b) (i) Explain the various types of resources available for energy generation. **07**  
(ii) Discuss the energy consumption pattern in India.

**Q.4** (a) Define energy management. State the basic principles and benefits of energy management. **07**

(b) Explain the procedure of calculating heating and cooling load of the buildings. **07**

**OR**

(a) Explain different types of strategies that can be adopted for energy management with suitable examples. **07**

(b) What do you understand by payback period? Explain NPV and IRR methods for payback period. Also, explain the drawbacks of each methods. **07**

**Q.5** (a) Explain: Demand Management. **07**

(b) Define life cycle costing and explain step by step procedure for life cycle costing. **07**

**OR**

(a) Enlist the Energy audit Instruments and explain any three in short with line sketches. **07**

(b) Company X is the chemical process industry. It is getting very large amount of electricity bill. It wants to identify the causes of high electricity bill. Further, it wants to implement energy conservation plan in the company. Kindly assist the owner of the company through proper guidance. **07**

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