

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2014****Subject code: 1722104****Date: 25-06-2014****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 the role of Energy Scenario ? Briefly explain 'Indian energy scenario' 07
 (b) Define the term 'Energy Management' Write Significance and role of Energy management. 07
- Q.2** (a) What do you mean by Energy conservation? Discuss its principles and importance. 07
 (b) What is Energy audit ? Discuss Types of Energy audit. 07
- OR**
- (b) Define the terms Power factor and Load factor. How is annual heating and cooling load factors calculated ? 07
- Q.3** (a) Discuss with flow diagram Hydro power plant. State its advantages over steam power plant. 07
 (b) What do you understand by pay back period and Internal rate of return ? 07
 A co-generation plant installation is expected to reduce a company's annual energy bill by Rs.24 lakhs. If the capital cost of the new co-generation installation is Rs.95 lakhs and the annual maintenance and operating costs are Rs. 5 lakhs, What will be the expected pay back period for the project?
- OR**
- Q.3** (a) Discuss the factors influencing energy management program. How energy management is carried out in an Industry? 08
 (b) List ten strategic measures for meeting the future energy requirements of India. 06
- Q.4** (a) Briefly explain Electricity saving techniques. State various energy efficient machines. 08
 (b) Briefly discuss Energy conservation in Internal combustion engine. 06
- OR**
- Q.4** (a) What is Bio gas ? Draw and explain any one bio gas plant. 08
 (b) Explain Green house concept. 06
- Q.5** (a) Why energy storage is required ? State the types of energy storage and explain any one. 07
 (b) What do you mean by Cogeneration? Explain Gas turbine cogeneration plant. 07
- OR**
- Q.5** (a) Write note on (i) Back pressure turbine (ii) Wind power generation 08
 (b) Discuss advantages and limitations of Solar energy. 06
