

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. - SEMESTER – II • EXAMINATION – WINTER • 2013****Subject code: 1721107****Date: 04-01-2014****Subject Name: Energy Conservation & Management****Time: 10.30 am – 01.00 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) Define Energy Management? State the principles of energy management and discuss the energy scenario with respect to energy sources available in India. **07**
- (b) Define waste heat recovery. List out the types of waste heat recovery devices and explain waste heat recovery through heat exchanger. **07**
- Q.2** (a) Define Energy audit. Enlist the types of energy audit and state the need of energy audit. Explain detailed energy audit methodology. **07**
- (b) Enlist types of steam traps. Explain its importance and explain any two. **07**
- OR**
- (b) State the objectives of energy management and discuss the energy management strategies in detail. **07**
- Q.3** (a) Enlist the Energy audit Instruments and explain any three in short with line sketches. **07**
- (b) Energy conservation opportunities in steam systems. **07**
- OR**
- Q.3** (a) Explain Energy conservation opportunities in I.C. Engines. **07**
- (b) Explain the terms: (1) PEP (2) pay back period (3) Internal rate of return. (4) Benchmarking **07**
- Q.4** (a) What is co-generation? Classify the co-generation systems and explain topping cycle with suitable example and neat sketch. **07**
- (b) Explain the types of cooling loads to be considered for load calculation and explain flywheel effect of building. **07**
- OR**
- Q.4** (a) Explain the procedures for calculation of cooling load for residential building. **07**
- (b) Discuss waste heat recovery in Heat wheel and heat pipe. **07**
- Q.5** (a) What is power factor? Explain power factor improvement. Also state the benefits of power factor improvement. **07**
- (b) Discuss the factors considered while electrical Billing. **07**
- OR**
- Q.5** (a) Define life cycle costing and explain step by step procedure for life cycle costing. **07**
- (b) Write a note on step by step control of maximum demand of load. **07**
