

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VII(OLD) • EXAMINATION – WINTER 2016

Subject Code: 171907**Date: 18/11/2016****Subject Name: Energy Conservation and Management (Department Elective - I)****Time: 10:30 AM to 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) Which are the various primary and secondary energy sources? Differentiate between commercial and non-commercial energy. **07**
(b) Explain energy and environment in brief. **07**
- Q.2** (a) Discuss one energy conversion activity with various losses occurring stage wise. **07**
(b) What is an energy audit? List the objectives of the energy management. **07**
- OR**
- (b) Explain the difference between preliminary and detailed energy audits? **07**
- Q.3** (a) List any seven key instruments used for energy audit and also give its application with brief details. **07**
(b) What are the advantages of discounted cash flow method? Also explain the role of an ESCO? **07**
- OR**
- Q.3** (a) Explain briefly the various elements of a monitoring and targeting system. **07**
(b) Explain how a CUSUM chart is drawn with an example. **07**
- Q.4** (a) What are the methods available for assessing the boiler efficiency and explain them in brief. **07**
(b) List the factors that affect energy efficiency in air compressors. **07**
- OR**
- Q.4** (a) How is the furnace performance evaluated by direct and indirect method? **07**
(b) Explain how cogeneration is advantageous over conventional power plant from energy saving point of view. **07**
- Q.5** (a) Explain the operating principle of a waste heat recovery boiler with examples. **07**
(b) Give tips for energy savings in thermal utility devices like pump and refrigeration system. **07**
- OR**
- Q.5** (a) Name any four main provisions of the EC act, 2001 as applicable to the designated consumers. **07**
(b) Explain terms: Return on investment, Net present value, Internal rate of return and Cash flows. **07**
