

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VII (OLD) EXAMINATION – WINTER 2018****Subject Code: 171907****Date: 15/11/2018****Subject Name: Energy Conservation And Management****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 various basic electrical parameters to calculate electricity tariff for an industry. **07**
- Q.2** (a) Explain how a CUSUM chart is drawn with an example. **07**
- (b) Define energy management. Which are the types of energy audit? Explain detailed energy audit. **07**
- OR**
- (b) Explain briefly the essential elements of monitoring and targeting system. **07**
- Q.3** (a) Define the following terms: (i) Humidity (ii) High grade energy (iii) Power factor (iv) Latent heat of fusion (v) Dew point (vi) Calorific value (vii) Load factor. **07**
- (b) Explain efficiency measurement methods of boiler in brief. **07**
- OR**
- Q.3** (a) Define the terms: SPP, ROI, NPV, IRR, Cash flow, Risk analysis & Time value of money. **07**
- (b) List the factors that affect energy efficiency in air compressors. **07**
- Q.4** (a) Discuss the effect of climate change on environment in detail due to effect of various energy uses. **07**
- (b) What do you mean by cogeneration? Classify cogeneration system & Explain bottoming cycle. **07**
- OR**
- Q.4** (a) What is the role of an ESCO? Discuss it in detail. **07**
- (b) Classify heat recovery systems and explain any one in detail. **07**
- Q.5** (a) Explain energy pricing in India. **07**
- (b) Explain the operating principle of a waste heat recovery boiler with examples. **07**
- OR**
- Q.5** (a) Name any four main provisions of the EC act, 2001 as applicable to the designated consumers. **07**
- (b) Give various tips for energy savings in thermal utility devices like compressor, pump and refrigeration system. **07**

\*\*\*\*\*