

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VIII (NEW) - EXAMINATION – SUMMER 2018

Subject Code: 2181916

Date: 30/04/2018

Subject Name: Energy Conservation and Management(Department Elective II)

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) How does an industry, nation and globe would benefit from energy efficiency programs? **03**
- (b) Define Energy management. State the basic principles and benefits of energy management. **04**
- (c) Investment for an energy proposal is Rs.15 lakhs. Annual savings (in Rs) for the first three years is 270000, 300000 & 470000. Considering cost of capital as 11 %, what is the net present value of the proposal? **07**
- Q.2** (a) Explain Energy security and role of energy conservation to achieve it. **03**
- (b) Discuss in brief Energy Conservation(EC) Act 2001 and its features. **04**
- (c) Explain scheme of BEE including designated consumers. **07**
- OR**
- (c) What do you mean by 'Energy audit'? Discuss types of energy audit briefly. **07**
- Q.3** (a) Give name and use of different energy audit instruments. **03**
- (b) Write short note on Bench marking. **04**
- (c) Define and explain following terms (i) Plant energy performance (ii) Production factor (iii) Reference year equivalent energy use **07**
- OR**
- Q.3** (a) Name various financing options. Explain self-Financing energy management **03**
- (b) Discuss the role of Energy Service Companies (ESCOs) **04**
- (c) Explain Internal Rate of Return technique with example. **07**
- Q.4** (a) What is the difference between monitoring and targeting? **03**
- (b) Explain how CUSUM chart is drawn with an example. **04**
- (c) Explain energy consumption techniques. **07**
- OR**
- Q.4** (a) Discuss the effect of following parameters on the performance of Boiler **03**
(1) Excess air (2) Blow down (3) Waste heat utilization
- (b) Briefly explain the various types of heat losses in furnace. **04**
- (c) Write step wise procedure to calculate indirect method of Boiler efficiency. **07**
- Q.5** (a) Give tips for energy saving in pumps. **03**
- (b) How to save energy in Compressed air delivery system as well as compressor? **04**
- (c) Explain with examples of waste heat utilization where high temperature waste heat is available. **07**

OR

- Q.5**
- | | | |
|------------|--|-----------|
| (a) | Mention various techniques for electricity conservation. | 03 |
| (b) | What do you mean by co-generation? Classify co-generation system & explain bottoming cycle | 04 |
| (c) | Explain Clean Development Mechanism (CDM) in detail. | 07 |
