

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-VII (NEW) EXAMINATION – WINTER 2020****Subject Code:2170911****Date:19/01/2021****Subject Name:Energy Conservation and Audit****Time:10:30 AM TO 12:30 PM****Total Marks: 56****Instructions:**

1. Attempt any **FOUR** questions out of **EIGHT** questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Explain General principles of Energy management. **03**
(b) Write down Guidelines for writing energy audit report. **04**
(c) Enlist Instruments for Audit and Monitoring Energy and Energy Savings. **07**
Briefly describe each.
- Q.2** (a) Define: Latent Heat of Fusion, Contract Demand and Load Factor. **03**
(b) Discuss Following: **04**
1) Commercial and Noncommercial energy
2) Renewable and Nonrenewable energy
(c) Explain importance of power factor improvement and methods to implement it. **07**
- Q.3** (a) What is Indian Boiler regulation? **03**
(b) Describe present scenario for energy consumption of India. **04**
(c) Explain various methods of energy conservation in house. **07**
- Q.4** (a) Explain FRC boiler in detailed. **03**
(b) List down energy conservation opportunities in refrigeration system. **04**
(c) Explain the concept of co-generation and its applications. **07**
- Q.5** (a) Explain soft starter in brief. **03**
(b) Explain in detail various methods of Energy Conservation in Compressors. **04**
(c) What is demand side management? Explain in brief. **07**
- Q.6** (a) How do you assess the performance of Fans? Explain. **03**
(b) Explain technical aspects of energy efficient motors. **04**
(c) Explain in brief. Discuss the effect of following parameters on the performance of Boiler **07**
1) Excess air
2) Blow down
3) Waste heat utilization

- Q.7 (a) Explain Boiler's limitations and constraints. **03**
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- (b) How to save energy by substituting existing fuel? **04**
- (c) Case studies of implemented energy cost optimization projects in electrical utilities as well as thermal utilities. **07**
- Q.8 (a) Difference between fans, blowers and compressors? **03**
- (b) Write energy saving opportunities in cooling towers. **04**
- (c) Explain Type of Pumps, Also Give Detail parallel and series operating pump performance. **07**

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