Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**BE - SEMESTER–VI (NEW) EXAMINATION – SUMMER 2023**

**Subject Code:3160916 Date:12-07-2023**

**Subject Name:Energy Conservation**

**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.**
4. **Simple and non-programmable scientific calculators are allowed.**

| | | | Marks |
|---|---|---|---|
| **Q.1** | **(a)** | Explain importance of energy conservation and role of standards and labelling in it. | **03** |
| | **(b)** | Compare preliminary audit and detailed audit. | **04** |
| | **(c)** | Explain various instruments used for performing energy audit. | **07** |
| **Q.2** | **(a)** | Define Harmonics and explain causes of it. | **03** |
| | **(b)** | Explain various methods for reduction of losses in transformer. | **04** |
| | **(c)** | Explain energy conservation in commercial lighting system. | **07** |
| | | **OR** | |
| | **(c)** | Write a technical note on: Demand Side Management (DSM) | **07** |
| **Q.3** | **(a)** | Explain limitations of energy optimization projects. | **03** |
| | **(b)** | Explain methods to reduce Transmission and Distribution (T&D) losses. | **04** |
| | **(c)** | Explain feed water treatment and its impact on boiler losses. | **07** |
| | | **OR** | |
| **Q.3** | **(a)** | Explain skills required for Energy Manager. | **03** |
| | **(b)** | Explain causes of low power factor. | **04** |
| | **(c)** | Explain methods for performance evaluation in boiler system. | **07** |
| **Q.4** | **(a)** | Explain benefits of blowdown in a boiler. | **03** |
| | **(b)** | List factors affecting furnace performance. | **04** |
| | **(c)** | Write a technical note on: Series and parallel operations of pumps. | **07** |
| | | **OR** | |
| **Q.4** | **(a)** | Define Pump. List various applications of pump. | **03** |
| | **(b)** | Explain classification of pumps. | **04** |
| | **(c)** | Explain scope of energy saving in steam distribution system. | **07** |
| **Q.5** | **(a)** | Explain applications of air compressor. | **03** |
| | **(b)** | Write a technical note on: Atmospheric Fluidized Bed Combustion system (AFBC). | **04** |
| | **(c)** | Explain energy saving in pumps. Also discuss the effect of oversizing the pump. | **07** |
| | | **OR** | |
| **Q.5** | **(a)** | Explain energy saving in cooling towers. | **03** |
| | **(b)** | Write a technical note on : Thermic Fluid Heaters. | **04** |
| | **(c)** | Describe various methods of energy conservation in blowers. | **07** |