Enrolment No./Seat No_____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**BE- SEMESTER–VII (NEW) EXAMINATION – WINTER 2024**

**Subject Code:3170920 Date:16-12-2024**

**Subject Name: Industrial Electrical Systems**

**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)** | What is tariff? Explain factors affecting tariff. | **03** |
| | **(b)** | Explain devices used for protection against lightning. | **04** |
| | **(c)** | Define electric shock and explain different electrical safety practices. | **07** |
| **Q.2** | **(a)** | Explain factors for deciding lighting scheme installations. | **03** |
| | **(b)** | Explain any 4 general rules for residential wiring system installations. | **04** |
| | **(c)** | Write a technical note on: Earthing at commercial installations. | **07** |
| | | **OR** | |
| | **(c)** | Explain different factors on which sizing of wire depends. | **07** |
| **Q.3** | **(a)** | Classify and explain industrial loads. | **03** |
| | **(b)** | Define the following terms:<br>i) Candle power ii) Lamp efficiency iii) Space height ratio iv) Luminous intensity | **04** |
| | **(c)** | Explain need of UPS and its types in detail. | **07** |
| | | **OR** | |
| **Q.3** | **(a)** | Explain different parts of Elevator. | **03** |
| | **(b)** | Write a technical note on: Incandescent Lamp | **04** |
| | **(c)** | Explain concept of Industrial load and wiring used in an industry. | **07** |
| **Q.4** | **(a)** | Explain methods for energy saving in illumination systems. | **03** |
| | **(b)** | Write a technical note on: Flood lighting | **04** |
| | **(c)** | State the requirements of elevator motors. State with reason best suitable motors for elevators. | **07** |
| | | **OR** | |
| **Q.4** | **(a)** | Explain design of lighting scheme for a residential application. | **03** |
| | **(b)** | Write a technical note on: CFL | **04** |
| | **(c)** | Explain methods for power factor improvements. | **07** |
| **Q.5** | **(a)** | Explain criteria for arrangement of apparatus on switch boards. | **03** |
| | **(b)** | Explain advantages of process automation. | **04** |
| | **(c)** | Draw and explain block diagram of PLC with its basic components and functions. | **07** |
| | | **OR** | |
| **Q.5** | **(a)** | Explain method for calculating number of lamps with a simple example. | **03** |
| | **(b)** | Explain panel metering and its types. | **04** |
| | **(c)** | Draw and explain block diagram of SCADA and explain its applications. | **07** |

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