Seat No.:	Enrolment No.

## GUJARAT TECHNOLOGICAL UNIVERSITY PDDC - SEMESTER-V • EXAMINATION - WINTER 2013

Date: 04-12-2013

Subject	Nama	Flootrical	Down	Utilization
Siiniect	Name:	Flectrical	Power	UHIIIZAHON

Time: 10.30 AM - 01.00 PM Total Marks: 70

**Instructions:** 

1. Attempt all questions.

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- 2. Make suitable assumptions wherever necessary.
- 3. Figures to the right indicate full marks.
- Q.1 (a) Discuss the temperature control of resistance furnace. Which are the special 07 purpose resistance ovens?
  - (b) What are the advantages of electrical power utilization? 07
- Q.2 (a) Explain following terms:

  1) Diversity factor 2) Load factor 3) Demand factor 4) Plant Utilization factor.
  - (b) Explain two part tariff and power factor tariff.

OR

- (b) What are the factors to be considerable for the choice of frequency for efficient **07** operation of coreless furnace.
- Q.3 (a) Explain design considerations of heating element. 07
  - (b) Explain principle of spot welding and butt welding with diagram. 07

OR

- Q.3 (a) Explain eddy current heating with diagram.
  - **(b)** Estimate the energy required to melt 500 kg of brass in a 1- ph. Ajax-Wyatt **07** furnace.

Given that specific heat of brass = 393.6 J kg-1 C - 1.

Latent heat of fusion of brass = 163 kJ/kg

Melting point of brass = 9200 C

Assume furnace efficiency = 70%

- **O.4** (a) Explain polar curve. Draw the polar curve for different type of light fixture.
  - (b) Explain the working of Sodium vapour lamp with circuit diagram. 07

OR

- Q.4 (a) What is the method of power factor improvement for furnaces? Discuss with 07 circuit diagram.
  - (b) If the melt is to be carried out in ¾ hour in above furnace in (A), what must be the orange power to the furnace?
- Q.5 (a) Write down a note on "Extraction and refining of metals" by electrolysis.
  - **(b)** Discuss the temperature control of resistance furnace. Which are the special **07** purpose resistance ovens?

OR

- Q.5 (a) What is electro deposition? Which are the factors governing it?
  - (b) Explain economic choice of equipment with suitable example. 07

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