

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2013****Subject code: 1722909****Date: 07-06-2013****Subject Name: Industrial Electronics****Time: 10.30 am – 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 Do as directed : (02 marks each) **14**

- (i) Draw only circuit diagram for single phase d.c. welder.
- (ii) Differentiate: online- offline UPS.
- (iii) State necessity of regulated power supplies?
- (iv) Explain Induction cooking.
- (v) “Dielectric heating is also used for low frequencies”. Justify the statement
- (vi) State drawbacks of induction heating.
- (vii) Explain the Joule effect.

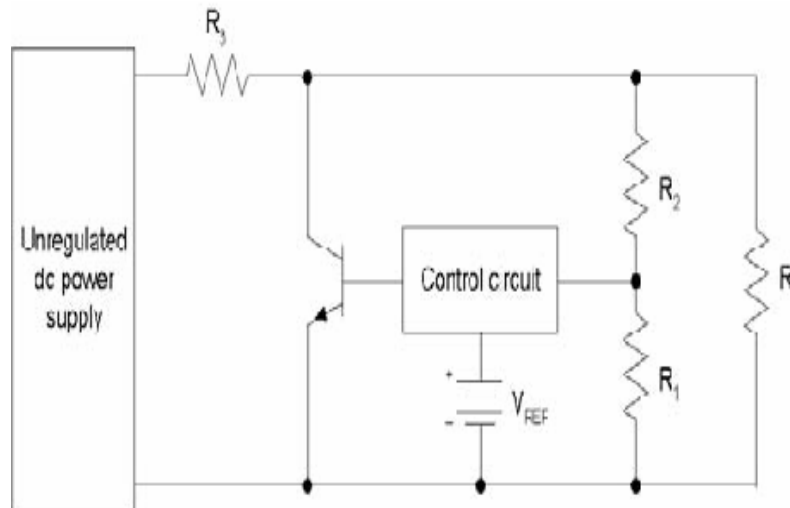
Q.2 (a) Discuss SMPS design for feed forward topology. **07**(b) Describe theory and principle of dielectric heating. **07****OR**(b) Describe high frequency source for induction heating. **07****Q.3** (a) Enlist and explain ultrasonic transducers. **07**(b) Compare wired-wireless network. State its utility for industrial electronics. **07****OR****Q.3** (a) Discuss spot welding and arc welding in detail **07**(b) “Data Communication is needed for Industrial Electronics” Justify the statement. **07****Q.4** (a) **07**

Fig1.

Describe the operation of voltage regulator shown in the fig 1.

(b) Analyze performance of an Online UPS. **07****OR**

- Q.4 (a)** Two types of power supplies are available in the market with following specification: **07**

Power supply	No load voltage	Full load voltage
A	25 V	24 V
B	25 V	22V

Which power supply to be purchased? Why?

- Q.4 (b)** Discuss any one linear fixed positive voltage regulator and adjustable negative voltage regulator. **07**

- Q.5 (a)** Describe operation of an inverter in detail. **07**

- (b)** Write short note on: HVDC. **07**

OR

- Q.5 (a)** Explain a battery charger using power component(s). **07**

- (b)** Write short note on: AC drive. **07**
