

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V • EXAMINATION – WINTER • 2014****Subject Code: 150203****Date: 03-12-2014****Subject Name: Power Electronics and Control Engineering****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 (a)** Explain different methods of triggering the SCR in detail. Which method is mostly used? Justify the same. **07**
- (b)** Explain the concept of speed control of DC motor using SCRs. **07**
- Q.2 (a)** Explain working principle and operation of induction heating. List out its merits and applications. **07**
- (b)** Explain construction and V-I characteristic of UJT. **07**
- OR**
- (b)** Explain characteristic and working of SCR in detail. **07**
- Q.3 (a)** Explain timing and sequential control in welding. **07**
- (b)** Explain construction and V-I characteristic of TRIAC. Also explain its modes of operation. **07**
- OR**
- Q.3 (a)** Explain in detail functioning of Leading and trailing tube circuits. **07**
- (b)** Explain construction and applications of thermocouples and strain gauges. **07**
- Q.4 (a)** Classify and explain the instruction set of 8085 microprocessor according to their functionalities. **07**
- (b)** Explain flag register of microprocessor 8085 in detail. **07**
- OR**
- Q.4 (a)** Draw and explain memory classification. **07**
- (b)** Explain the following instructions with an example: INX, XCHG, ANA, DAA, LDA, RAR, JNC **07**
- Q.5 (a)** Write a short note on A to D converters. **07**
- (b)** 1. Write an assembly language program to move 16 bits data from memory locations D020H and D021H to register pair DE. **03**
2. Write an assembly language program to add five numbers in memory array starting from 4510H to 4514H. Store the result at 4515H. **04**
- OR**
- Q.5 (a)** Explain Programmable Logic Controller in detail. **07**
- (b)** Write an assembly language program to arrange an array of data in ascending order. **07**
