Seat No.: _____ Enrolment No._____

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**

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