Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER– I EXAMINATION – SUMMER 2016

Subject Code: 610004   **Date: 11-05-2016**
Subject Name: Fundamentals of Computer Organization
Time: 02.30pm to 05.00 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)**	List and explain basic components of computer system.	**07**
	(b)	Convert $(1010)_{10}$ to octal, hexadecimal and BCD. Write radix for the decimal and hexadecimal number system.	**07**
Q.2	**(a)**	Which gates are known as universal gates? Justify your answer with explanation.	**07**
	(b)	For four variables A,B,C and D, inputs (0000,0010,1100,1010,1110,1111) have 1 as output, while inputs(0001,0011) had don't care condition. Other inputs has 0 as output. Minimize the circuit using K-MAP and draw AND to OR circuit diagram.	**07**
		OR	
	(b)	What is flip-flop? Explain RS flip-flop in detail.	**07**
Q.3	**(a)**	What is master slave flip flop? Explain its working with proper diagram.	**07**
	(b)	In binary number system, how addition is done using 1's and 2's complement system? Explain in detail with proper example.	**07**
		OR	
Q.3	**(a)**	Draw 3 bit binary counter. Draw the timing diagram for the same. Explain working of the 3bit binary counter.	**07**
	(b)	What is adder? How Half Adder is used to create Full Adder? Draw and explain 2 bit parallel binary adder.	**07**
Q.4	**(a)**	What is the multiplexer? Why do we require it? Draw and explain 4 line multiplexer.	**07**
	(b)	Which are the various instruction format used in computer system? Explain all of them in detail.	**07**
		OR	
Q.4	**(a)**	What is RAM? What is ROM? Why do we require RAM and ROM? Compare both of them.	**07**
	(b)	What is addressing mode? List all addressing modes. Explain Indirect Addressing mode in detail.	**07**
Q.5	**(a)**	What is DMA? Why do we required it? Explain in detail.	**07**
	(b)	What is auxiliary memory? Discussed various auxiliary memory used in computer system. Compare auxiliary memory with RAM in terms of use, speed and cost.	**07**
		OR	
Q.5	**(a)**	What is cache memory? What is virtual memory? Why do we require both?	**07**
	(b)	Explain various types of printer.	**07**

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