Seat No.: _____   Enrolment No._____

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

Subject Code: 2610004   **Date:07/01/ 2017**

Subject Name: Fundamentals of Computer Organization

Time:10.30 AM TO 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)**	Draw and explain the basic components of digital computer.	**07**
	(b)	Explain printer and its types.	**07**
Q.2	**(a)**	Do as directed. Show steps :	
		(i) Convert $(1010110.1101)_2$ to its equivalent hexadecimal number.	**02**
		(ii) Convert $(732)_8$ to binary number.	**02**
		(iii) Subtract $(1010)_2$ from $(1101)_2$ using 1st complement.	**03**
	(b)	What is universal gate? Which gates are known as universal gate? Explain with reason with help of any one such gate as universal gate.	**07**

OR

	(b)	What is K-MAP? Derive Boolean expression (in SOP form) using K-MAP for a logic circuit that will have 1 output when X=0, Y=0,Z=1 and X=1 Y=1,Z=0 and 0 output for all other input states.	**07**
Q.3	**(a)**	What is RS Filp-Flop? Draw the circuit diagram and explain its working.	**07**
	(b)	Explain Binary Coded Decimal Adder.	**07**

OR

Q.3	**(a)**	What is shift register? Explain its working with proper circuit diagram.	**07**
	(b)	Draw and explain basic memory cell.	**07**
Q.4	**(a)**	What is Cache memory and Virtual memory. Explain in detail.	**07**
	(b)	Explain working of ADD & MOV instructions with example.	**07**

OR

Q.4	**(a)**	What is Bus? Explain different types of buses.	**07**
	(b)	Explain Instruction and Execution Cycle.	**07**
Q.5	**(a)**	Describe zero-address and two-address instruction word formats.	**07**
	(b)	Explain instruction format of 8086 microprocessor.	**07**

OR

Q.5	**(a)**	What do you mean by Addressing Techniques? Explain Indirect and Indexed Addressing techniques with an example.	**07**
	(b)	Explain various parts of EU in 8086 microprocessor.	**07**

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