Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER-1 • EXAMINATION – WINTER 2013

Su	bject	Code: 610004	Date:	24/12/2013	
Su	bject	Name: Fundamentals of Computer Organization			
		02:30 pm TO 05:00 pm	Total	Marks: 70	
Ins	tructio				
0.1	2. 3.	Figures to the right indicate full marks.			
 Q.1 (a) Answer the following. 1) Convert the (1234)₁₀ number to binary, octal and hexadecimal number syste 2) Perform the subtractions of the following binary numbers using 1's and complements with proper steps. 				•	03
	(b)	 (1101)₂ - (1010)₂ Answer the following. 1) What is Binary-Coded-Decimal Number System (BCD)? the BCD. 2) What is EX-OR gate? Draw the block diagram, and truth the EX-OR gate. 			03 04
Q.2	(a)	A digital circuit has 4-variable (A,B,C,D). This circuit has output 1 only for (0000),(0010),(0101), (1011) and (1111) inputs. Draw the K-Map and simplify the Boolean expression.			07
	(b)	Which are the basic components of a digital computer? Do explain the purpose of each component in details. OR	raw the d	iagram and	07
	(b)	Which gates are known as universal gate? Why?			07
Q.3	(a) (b)	What is flip-flip? Explain RS Flip flop in details. What is the shift register? With the help of block diagram and working of the shift register.	d wave fr	om, explain	07 07
0.0		OR			07
Q.3	(a) (b)	What is master-slave flip flop? Explain in details. What is binary counter? With the help of block diagram and wave from, explain working of the binary counter.			
Q.4	(a)	What is adder? How the half adder is used to construct the fudetails.	ıll adder?	Explain in	07
	(b)	Why do we require various instruction formats? Explain Two and Zero –Address Instruction in details. OR	o-Address	Instruction	07
Q.4	(a) (b)	What is the multiplexer? Draw 8 to 1 line multiplexer and explain its working. List the various addressing mode and explain direct and index addressing mode in details.			
Q.5	(a)	What is RAM and ROM? Explain working of RAM with blotypes of ROM.	ock diagra	am. List the	07
	(b)	Explain auxiliary memory in details. OR			07
Q.5	(a) (b)	What is Direct Memory Access (DMA)? Explain working of Explain various types of the printer in details.	DMA wit	h diagram.	07 07