

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**
