

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER-I • EXAMINATION – SUMMER - 2017

Subject Code: 2610004

Date: 19-06-2017

Subject Name: Fundamentals of Computer Organization

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 the basic components of a Digital Computer with the Block Diagram. **07**
(b) Briefly Explain (i) Printer (ii) Multimedia Projector and (iii) Display Unit. **07**
- Q.2 (a)** 1. Convert Octal 562 to Binary **01**
2. Convert Binary 11010011 to Hexadecimal **02**
3. Find the Decimal equivalent of the Binary Number 110.101 **02**
4. Divide Binary 100001 from 110 **02**
(b) Using Karnaugh map simplify Boolean function $F(A,B,C,D) = \sum (0,2,4,6,8,9,10)$. **07**
- OR
- (b)** What are the universal gates? Explain universal gates with circuit and truth table. **07**
- Q.3 (a)** 1. What are XOR and NAND gate? Give its truth table. **03**
2. State the De Morgan's theorems. Explain any one. **03**
3. What is karnaugh map? Explain with an example. **01**
(b) Explain shift register with wave form and circuit diagram. **07**
- OR
- Q.3 (a)** What is Binary Half-Adder? Give its design diagram and truth table. **07**
(b) Explain RAM? Types of RAM? Which did you select? Why? **07**
- Q.4 (a)** Explain the process of addition using 1's and 2's complement system. **07**
(b) Describe different types of buses. Explain interface of buses with processor, memory and I/O devices. **07**
- OR
- Q.4 (a)** What do you mean by Addressing Techniques? Explain Indirect and Indexed Addressing techniques with an example. **07**
(b) Design a decoder which is completely parallel to decode three flip-flops. Explain with its block diagram. **07**
- Q.5 (a)** Draw the block diagram of 8086 and explain queue and segment registers. **07**
(b) Define following terms: instruction word, instruction cycle, instruction counter, op-code register. **07**
- OR
- Q.5 (a)** Explain the general format of Instructions of 8086. Give the template for MOV Instruction. **07**
(b) Explain different addressing modes of 8086 with example. **07**
