# GUJARAT TECHNOLOGICAL UNIVERSITY
## MCA - SEMESTER– I EXAMINATION – WINTER 2019
**Subject Code: 3610004**                                                      **Date: 26/12/2019**

**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.**

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|---|---|---|
| **Q-1(A)** | Explain basic components of Digital Computer with block diagram. | **[7]** |
| **(B)** | Explain in brief: scanner, Display Unit, USB | **[7]** |
| | | |
| **Q-2(A)** | 1. Convet octal 552 to binary. | **[1]** |
| | 2. Convert binary 10101011 to Hexadecimal number. | **[2]** |
| | 3. Divide binary 1100111 from 110 | **[2]** |
| | 4. Find decimal number of 1101.10 binary number. | **[2]** |
| **(B)** | Using k-map simplify Boolean function F(A,B,C,D) = E(0,2,4,6,8,9,10) | **[7]** |

**OR**

| | | |
|---|---|---|
| **(B)** | What are Universal gates? Explain Universal gates with circuits and truth table. | **[7]** |
| | | |
| **Q-3(A)** | What is Flip-Flop? Explain SR flip-flop and its functionality. | **[7]** |
| **(B)** | Design and explain binary counter to count from 0 to 7. | **[7]** |

**OR**

| | | |
|---|---|---|
| **(A)** | What RAM? Also explain types of RAM. | **[7]** |
| **(B)** | Write a short note on Instruction cycle and execution cycle of control register. | **[7]** |
| **Q-4 (A)** | What is Multiplexer? Explain 4-to-1 line multiplexer. | **[7]** |
| **(B)** | What is Binary Half Adder? Draw diagram and truth table. | **[7]** |

**OR**

| | | |
|---|---|---|
| **(A)** | Write a short note on Shift Register. | **[7]** |
| **(B)** | Describe different typed of buses. Explain interface of buses with processor, memory and I/O devices. | **[7]** |
| | | |
| **Q-5(A)** | What do you mean by addressing techniques? Explain Indirect and Indexed addressing techniques with examples. | **[7]** |
| **(B)** | Explain various parts of EU in 8086 microprocessor. | **[7]** |

**OR**

| | | |
|---|---|---|
| **(A)** | Explain working of following instructions with example. | **[7]** |

1.MOV
2.XOR
3.CMP
4.NEG
5.AND
6.OR
7.MUL

| | | |
|---|---|---|
| **(B)** | Explain different addressing modes of 8086 with example. | **[7]** |

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