

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER-I • EXAMINATION – SUMMER • 2015

Subject Code: 610004**Date: 12-05-2015****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) Answer following:**
1. Convert Binary 11101 to its equivalent grey code and hexadecimal. **02**
 2. Draw K map for $Y = \sum m(1, 5, 7, 9, 11, 13, 15)$ and simplify the expression. Also implement the simplified expression using appropriate gates. **05**
- (b) Answer following:**
1. Prove using method of perfect induction: $(A + B)(A + C) = A + BC$ **02**
 2. Draw K map for $Y = \sum m(1, 3, 4, 5, 7, 9, 11, 13, 15)$ and simplify the expression. Also implement the simplified expression using appropriate gates. **05**
- Q.2 (a)** Explain the working of instructions of 8086: MOV, ADD, MUL, CMP, DEC, XOR, JMP. **07**
- (b)** What are various modes of data transfer? Explain DMA in detail. **07**
- OR**
- (b)** Describe different types of buses. Explain interface of buses with processor, memory and I/O devices. **07**
- Q.3 (a)** Write notes on Dynamic Random-Access Memories with necessary diagrams. **07**
- (b)** What do you mean by Addressing Techniques? Explain Indirect and Indexed Addressing techniques with an example. **07**
- OR**
- Q.3 (a)** Write short note on random-access memories. **07**
- (b)** Describe two-address and zero-address instruction word formats. **07**
- Q.4 (a)** Write short note on magnetic disk. **07**
- (b)** What is a flip-flop? Explain characteristics of flip-flop. Explain RS flip-flop with waveform. **07**
- OR**
- Q.4 (a)** Write short note on printer. **07**
- (b)** Write a short note on Multiplexer with its working and applications. **07**
- Q.5 (a)** Explain different addressing modes of 8086 with example. **07**
- (b)** Draw the block diagram of 8086 and explain queue and segment registers. **07**
- OR**
- Q.5 (a)** Draw the block diagram of 8086 and explain Bus Interface Unit. **07**
- (b)** Explain Execution Unit of 8086. **07**
