Seat No.: _____ Enrolment No._____

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 = ∑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 = ∑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**

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