2012N1018

Candidate's Seat No :_____

IMSc (CA&IT) First Year (Old) Examination

Fundamentals of Computer Organization

December-2024

Time : 2-30 Hours] **[Max. Marks : 70**

Instruction: use of simple calculator is allowed.

Q.1 Answer the following questions:

1. Full form of VLSI. 1
2. Full form of SSI 1
3. Full form of ULSI 1
4. Full form of ASCII. 1
5. ABC' + ABC + AB' = A 2
6. ABCD + AB'CD 2
7. Convert Hexadecimal to Decimal:

(a) 4B.F 2

(b) 3C 2

8. Perform binary addition: -

(a) 1011011 + 1011000 1

(b) 100111 + 11011 1

Q.2. Answer the following questions: **7 × 2 = 14**

(A) State the De- Morgan's thermos and explain.

(B) What is meant by logic gates? Explain AND, OR and NOT gates with logic diagram, truth table and Boolean expressions.

OR

(A) Which types of gates are XOR and XNOR? with logic diagram, truth table and Boolean expression.

(B) Explain Computer Architecture. Also Draw block Diagram of Digital computer.

Q.3. Answer the following questions: **7 × 2 = 14**

(A) What is Combinational Circuit? Explain Half Adder and Full Adder with block diagram, Logic Diagram, truth table and Boolean Expression.

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(B)What do you mean by De-Multiplexer? Explain 1 -to- 2 and 1-to-4-line De-multiplexer with block diagram, Logic Diagram, truth table and Boolean Expression.

OR

(A) What do you mean by Encoder? Explain 8-to-3line Encoder with block diagram, Logic Diagram, truth table and Boolean Expression.

(B) Define Bus. Explain Data Bus, Control Bus and Address Bus.

Q.4 Answer the following questions: **$7 \times 2 = 14$**

(A) Explain Memory Hierarchy with Diagram

(B) What are Registers? Explain types of Registers.

OR

(A) Explain Difference between Primary memory and Secondary Memory.

(B) Explain Input-Output Organization with Diagram and also what do you mean by peripheral devices?

Q.5 Answer the following questions: **$7 \times 2 = 14$**

(A) What do mean by flip flop explain SR, JK, D, T.

(B) Explain Difference between Flip-Flop and Latches.

OR

(A) Explain Difference between PROM, EPROM and EEPROM.

(B) Explain Microprocessors and Microcontrollers in detail.