DU-003-003207 Seat No. _____

B. C. A. (Sem. - II) (CBCS) Examination

April / May - 2015

CS - 09 Comp. Organization & Architecture (New)

Faculty Code : 003
Subject Code : 003207

Time : $2\frac{1}{2}$ Hours] [Total Marks :**70**

Instruction : (1) There are three Questions and all Questions are compulsory.

(2) Answer of MCQ and All Questions must be written in answer sheet only

Section - I

Q:1 Multiple Choice Questions : [20]

1. An inverter is also called a _____ gate.

(A) NAND (B) AND

(C) NOT (D) NOR

2. How many full-adders are required to construct an m-bit parallel adder ?

(A) m-1 (B) m+1

(C) m (D) m/2

3. A demultiplexer is also known as _____

(A) encoder (B) multiplexer

(C) data selector (D) data distributor

4. Digital design often starts by constructing a _____ table.

(A) two-stage (B) truth table

(C) standard (D) None

5. _____ has become the most widely used bipolar family.

(A) DTL (B) TTL

(C) ECL (D) MOS

6. Binary coded decimal (BCD) number express each digit as a _____

(A) byte (B) nibble

(C) bit (D) All of the above

7. The hexadecimal number system is widely used in analyzing and programming _____

(A) registers (B) vacuum tube

(C) chips (D) microprocessors

8. Software interrupt is initiated by _____

(A) signals (B) wave form

(C) executing an instruction (D) none

9. Which Bus is bi-directional ?

(A) Address Bus (B) Control Bus

(C) Duty Bus (D) None

10. Which is not stack operation?

(A) PUSH (B) POP

(C) PULL (D) PEEP

11. Which of following electronic component is not found in ordinary ICs ?

(A) diodes (B) resistors

(C) transistor (D) inductors

12. What is reverse polish notation of A + B * C + D ?

(A) ABC * D+ + (B) ABCD * + +

(C) A * BCD + + (D) None

13. A gate is a logic circuit with one or more input signals but _____output signal.

(A) one (B) two

(C) double (D) more than one

14. Which of following flip-flops is free from race around problem ?

(A) T flip-flop (B) SR flip-flop

(C) master-slave JK (D) None

15. A shift register can be used for

(A) parallel to serial conversion (B) serial to parallel conversion

(C) digital delay line (D) All of above

16. A flip-flop can store _____

(A) 1 bit of duty (B) 2 bit of duty

(C) 3 bit of duty (D) 4 bit of duty

17. Which of the following is not a type of Interrupts ?

(A) External Interrupts (B) Internal Interrupts

(C) Software Interrupts (D) Analog Interrupts

18. Parallel adders are _____

(A) Combinational logic circuits (B) Sequential logic circuits

(C) Both of above (D) All of the above

19. DMA stands for _____

(A) Direct memory alternation (B) Direct memory access

(C) Direct module (D) None

20. An OR gate has 6 inputs , how many words are in its truth table ?

(A) 64 (B) 32

(C) 16 (D) 128

Section – II

Q : 2 (A) Attempt the following : (Any three) [6]

1. Discuss NAND gate as a universal gate.
2. Explain SR Flip-Flop.
3. Explain Half Subtracter.
4. What is the difference between Half Adder and Full Adder.

5. Write a short note on modes of data transfer.
6. Explain parity bit.

(B) Attempt the following : (Any three) [9]

1. Write a short note on counter.
2. Explain Input output processor.
3. Explain Shift Register.
4. Write note on control word.
5. Write note on Encoder.
6. What is Interrupt ? Explain types of Interrupt.

(C) Attempt the following : (Any two) [10]

1 Explain Stack Organization.
2. Explain Master slave Flip-Flop.
3. Explain Polish Notation with its advantages.
4. Explain general register organization.
5. Explain register with parallel load.

Q : 3 (A) Attempt the following : (Any three) [6]

1. Define : Address Bus , Data Bus , Control Lines
2. Explain Micro operation.
3. Explain LSI , MSI , SSI.
4. Explain decoder.
5. What is logic gate ? Explain logic gates with truth table.
6. Convert into reverse polish notation.
   (A*B)/[(C*D)+E*F]

(B) Attempt the following : (Any three) [9]

1. Explain Hexa Decimal Number System.
2. Write a short note on asynchronous serial transfer.
3. Write a short note on DMA transfer.
4. Write a short note on unidirectional shift register.
5. Explain D Flip-Flop.
6. Write a note on Ripple Counter.

(C) Attempt the following : (Any two) [10]

1. What is combinational circuit ? Explain with types.
2. What is Flip Flop ? Explain with types.
3. Prove following Boolean algebra.
   (a) AB + A(B+C)+B(B+C)=B+AC
   (b) (X+Y')(X'+Y) = XY + X'Y'
4. Write note on Error Detection Code.
5. Explain Asynchronous 4 bit Binary Counter.