ML-178-003-003203   Seat No._____

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

April/May - 2012

CS - 09 : Computer Organization & Architecture

Faculty Code : 003
Subject Code : 003203

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

SECTION - I

1   MCQ.   20

(1)   The control and arithmetic logic sections are called
_____.

(A)   Block diagram

(B)   Control unit

(C)   Input/output unit

(D)   Central processing unit

(2)   Software interrupt is in initiated by _____.

(A)   Signal

(B)   Wave form

(C)   Executing an instruction

(D)   None

(3)   Stack means _____.

(A)   FIFO

(B)   LIFO

(C)   LICO

(D)   None

ML-178-003-003203]   1   [Contd...

(4) The memory bus is made up of two parts _____ and
_____.

   (A) Data bus, address bus

   (B) RAM, ROM

   (C) Data bus, RAM

   (D) Buffer, address bus

(5) The address register is _____ after each word that is
transferred to memory.

   (A) Decremented

   (B) Incremented

   (C) Null

   (D) Can't be decided

(6) When BR input is active, the CPU _____ the execution
of the current instruction and places the address bus.

   (A) Start

   (B) Terminates

   (C) Suspend

   (D) None of the above

(7) The decoders presented in the section are called n-to-m
line decoder, where m _____.

   (A) $=2^n$

   (B) $>=2^n$

   (C) $<=2^n$

   (D) $>2^n$

(8) 1011001110 + 101 = _____.

   (A) 1001111

   (B) 10001111

   (C) 10001110

   (D) 10011110

(9) When inputs J and K are both equal to 1, a clock transition switches the outputs of the flip flop to their _____ state.

(A) No change

(B) Clear to 0

(C) Set to 1

(D) Complement

(10) The behavior of a sequential circuit is determined from the inputs, the outputs and the _____.

(A) Present state

(B) State of its flip flops

(C) Next state

(D) None of the above

(11) A 2^n to 1 multiplexer has _____ input data lines and _____ input selection lines.

(A) $n, 2^n$

(B) $1, 2^n$

(C) $2, 2^n$

(D) $2^n, n$

(12) A telephone dial system is an example of _____ circuit.

(A) Asynchronous

(B) Synchronous

(C) Combinational

(D) Sequential

(13) In full adder, there are _____ input and _____ output terminal.

(A) Two, two

(B) Three, two

(C) Two, three

(D) None of the above

(14) The input of half adder is 1 0 0 then output of sum bit is _____.

    (A) 1

    (B)) 0

    (C) Can't determine

    (D) Invalid number of inputs

(15) The transfer of new information into a register is referred to as _____ the register.

    (A) Expanding

    (B) Starting

    (C) Loading

    (D) Ending

(16) The output of sequential circuit depends on _____ inputs as well as _____ history of inputs.

    (A) Present, previous

    (B) Previous, present

    (C) Complement, present

    (D) Previous, complement

(17) The input of full adder is 1 0 1 then output of carry bit is _____.

    (A) 1

    (B) 0

    (C) Can't determine

    (D) Invalid number of inputs

(18) A multiplexer is also known as _____.

    (A) Coder

    (B) Decoder

    (C) Data selector

    (D) Multi vibrator

(19) A register is a group of _____ with each flip flop capable of storing one bit of in formation.

(A) Gates

(B) IC

(C) Clock pulses

(D) Flip flop

(20) 110010101*1001 = _____.

(A) 110000111101

(B) 111000111100

(C) 111100111100

(D) 111000111101

SECTION - II

I (a) Attempt any three :   6

(1) What is logic gate ? Explain AND, OR, NOT gate with truth table.

(2) What is don't care condition ? Explain with example.

(3) Reduce following Boolean expression.

(a) (BC'+A'D)(AB'+CD')

(b) AB+A(CD+CD')

(4) Write a short note on ALU.

(5) What is parity bit ? Explain.

(6) Construct a full adder using two half address.

(b) Attempt any three :   9

(1) Write a short note on unidirectional shift register.

(2) Simplify following

(a) F(A,B,C,D) $\sum$ (0,1,2,5,8,9,10)

(3) Give difference between combinational circuit and sequential circuit

(4) Explain fixed point representation.

(5) Explain input output processor.

(6) Write a short note on asynchronous serial transfer.

(c) Attempt any two :   10

(1) What is Flip Flop ? Explain with types.

(2) Explain register with parallel load.

(3) What is combinational circuit ? Explain with types.

(4) Write a short note on asynchronous data tranfer.

(5) What is DMA ? Explain DMA controller.

2   (a)   Attempt any three :   6

(1) Write a short note on modes of data transfer.

(2) Explain accumulator register.

(3) Explain different addressing modes.

(4) Discuss NAND gate as a universal gate.

(5) Convert into reverse polish notation.

(A*B)/[(C*D)+E*F]

(6) Prove following Boolean algebra

(a) AB+A(B+C)+B(B+C)=B+AC.

(b) (X+Y')(X'+Y) = XY+X'Y'

(b)   Attempt any three :   9

(1) What is interrupt ? Explain types of interrupt.

(2) Write a short note on DMA transfer.

(3) Explain CPU - IOP communication with chart.

(4) Write a short note on counter.

(5) Explain octal to binary encoder in detail.

(6) Write short note on IOP>

(c) Attempt any two :   **10**

(1) Explain general register organization.

(2) Explain register stack with push and pop algorithm.

(3) Explain Instruction ? Formats with types.

(4) What is decoder. Explain 3 to 8 line decoder in detail.

(5) Write a short note on multiplexer.

_____