**MBH-003-1032003**   Seat No. _____

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

### March / April - 2018

## CS - 09 : Computer Organization & Architecture

### *(New Course)*

**Faculty Code : 003**

**Subject Code : 1032003**

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

**1** **(A)** Answer the Following :                                          **4**

   (1) A gate is a logic circuit with one or more input signals but _____ output signal.

   (2) The Exclusive – NOR gate is equivalent to an _____ gate followed by an inverter.

   (3) Demultiplexer is also known as _____

   (4) A register is a group of _____ with each flip flop capable of storing one bit of information.

   **(B)** Answer any **one** in brief :                                      **2**

   (1) Explain SR Flip – Flop.

   (2) Which are universal gates? Why?

   **(C)** Answer any **one** in detail :                                     **3**

   (1) Write a note on floating point representation.

   (2) Explain combinational circuit.

   **(D)** Answer any **one** :                                              **5**

   (1) Explain General Register Organization.

   (2) Explain ALU.

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**2** (A) Answer the Following : 4

    (1) Computer ICs work reliably because they are based on _____ design.

    (2) PISO stands for _____

    (3) BCD stands for _____

    (4) 1011001110 % 101 = _____

  (B) Answer any **one** in brief : 2

    (1) Draw the logic circuit for given Boolean Function.

$$F = (AB)(A + B'+ C)(B'C')$$

    (2) Write note on Control Word.

  (C) Answer any **one** in detail : 3

    (1) Simplify the following Boolean Function F together with the don't care condition.

$$F(W,X,Y,Z) = \Sigma(0,1,2,3,7,8,10)$$
$$D(W,X,Y,Z) = d(5,6,11,15)$$

    (2) Explain Shift Register.

  (D) Answer any **one** : 5

    (1) Explain $4 \times 1$ Multiplexer.

    (2) Write a note on Boolean algebra.

**3** (A) Answer the Following : 4

    (1) VLSI stands for _____

    (2) $A + B * C$ prefix of it is _____

    (3) Stack works on _____ Method.

    (4) Software interrupt is initiated by _____

  (B) Answer any **one** in brief : 2

    (1) Obtain 1's and 2's complement

       1110101

       0011111110.

    (2) Explain Don't care condition with example.

(C) Answer any **one** in detail :                                              3

   (1)  Explain Demultiplexer.

   (2)  Explain Decoder.

(D) Answer any **one** :                                                         5

   (1)  State and prove De – Morgan's theorems.

   (2)  Explain Stack Organization

4  (A)  Answer the Following :                                                   4

   (1)  AND, OR and NOT are considered as universal
        gate (True / False).

   (2)  In Floating Point, the first part represents a
        signed, fixed – point number is called the mantissa
        (True / False).

   (3)  Stack Overflow is the example of Internal Interrupt.
        (True / False)

   (4)  Stack means last in first out (LIFO) (True / False).

(B)  Answer any **one** in brief :                                               2

   (1)  Multiply the binary numbers 1000 and 1001

   (2)  Divide 10001 by 110.

(C)  Answer any **one** in detail :                                             3

   (1)  Explain accumulator register.

   (2)  Explain stack organization.

(D)  Answer any **one** :                                                        5

   (1)  Explain DMA Controller.

   (2)  Explain K – Map with example.

**5** (A) Answer the Following : 4

   (1) ALU stands for _____

   (2) DMA stands for _____

   (3) The radix of binary number is _____

   (4) _____ Flip – flops are free from race around problem.

(B) Answer any **one** in brief : 2

   (1) What is Parity Bit?

   (2) Define : Address Bus, Data Bus.

(C) Answer any **one** in detail : 3

   (1) Explain ALU with Block diagram.

   (2) Explain IOP.

(D) Answer any **one** : 5

   (1) Explain Error Detecting Codes.

   (2) Explain Bi – Directional Shift Register.

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