Seat No. _____

HP-003-2032003

B. C. A. (Sem. II) (W.E.F. 2019) Examination

April - 2023

CS - 09 : Computer Organization & Architecture

Faculty Code : 003

Subject Code : 2032003

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

1 (a) Give answer of following : **4**

(1) J-k flipflop is universal flip flop. (True/false)

(2) Flip flop can store _____ bit of information.

(3) An inverter is called _____ gate.

(4) NAND gate is complement of AND gate. (Yes/No)

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

(1) Explain and gate in detail.

(2) Explain D flipflop.

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

(1) Why j-k flipflop in detail.

(2) Explain de-Morgan theorem.

(d) Write a note on following : (any **one**) **5**

(1) Solve using k-map by sum of product

F (w,x,y,z) = (0,2,5,8,11)

(2) Solve using k-map with product of sum and don't care condition.

F (a,b,c,d) = (0,2,4,6,9,11,12,14) + d(3,7)

2 (a) Give answer of following : **4**

(1) Full form of VLSI.

(2) Logic states is only _____ or 0.

(3) An encoder has 2n line and produce _____ output line.

(4) What is decoder?

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

(1) Explain integrated circuit.

(2) Explain shift register.

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

(1) Explain encoder in detail.

(2) Explain 2*4 decoder.

(d) Write a note on following : (any **one**) **5**

(1) Explain bi-directional shift register with parallel load.

(2) Explain 4*1 line multiplexer.

3 (a) Give answer of following : **4**

(1) Solve using 1's complement 010101.

(2) The collection of 8 bit is called ___ byte.

(3) What is the work of program counter?

(4) What is the work of stack pointer?

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

(1) Solve 010101 + 10101 + 110011.

(2) Solve 101010 – 11111.

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

(1) Solve using 2's complement 111000110.

(2) Solve 110001 * 11.11.

(d) Write a note on following : (any **one**) **5**

(1) Explain floating point representation.

(2) Explain error detection code in detail.

4 (a) Give answer of following : **4**

(1) Full form of CPU.

(2) Full form of RPN.

(3) _____ number of bit used to perform complete operation.

(4) _____ of bit needed to perform mathematical operation.

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

(1) Explain control word.

(2) Explain RPN.

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

(1) Solve using RPN A * B + C * D + E * F.

(2) Explain interrupts.

(d) Write a note on following : (any **one**) **5**

(1) Explain memory stack in detail.

(2) Explain push and pop operation using stack.

5 (a) Give answer of following : **4**

(1) Full form of DMA.

(2) What is data bus?

(3) What is address bus?

(4) What is control line?

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

(1) Define DMA.

(2) Explain input output buses in detail.

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

(1) Explain input output interface.

(2) Explain DMA transfer.

(d) Write a note on following : (any **one**) **5**

(1) Explain DMA controller.

(2) Explain IOP.
