SUB: CS – 09 – COMPUTER ORGANIZATION AND ARCHITECTURE   **MARKS**: 70

Q.1 A   Attempt the following   **4 Marks**

1)   Four adjacent minterm or maxterm makes one _____.

2)   An n-bit register has a group of_____ flip flop.

3)   Kmap is also known as _____.

4)   Find the complement of : F = (A+B+C)(A'+B'+C)(AB'C')
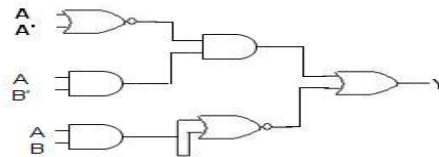
Q.1 B   Answer in brief (Any 1 out of 2)   **2 Marks**

1)   Simplify the Boolean expression :F = A+B'C(A+(B'(C)')) with logic diagram

2)   Define : Buffer Gate & Inverter Gate with truth table.

Q.1 C   Answer in detail (Any 1 out of 2)   **3 Marks**

    What is the output Y for the logic circuit
    shown in the.1-→

2)   Explain: DeMorgan's Law

Q.1 D   Write a note on (Any 1 out of 2)   **5 Marks**

1)   Simplify Boolean function using figure Kmap :   F(x,y,z) = Σ (0,2,3,4,6)

2)   Explain: Universal Gates

Q.2 A   Attempt the following   **4 Marks**

1)   What is the new Improvement model for S-R flip flop?

2)   VLSI = _____

3)   Multiplexer is also known as _____

4)   _____ is a basic element of sequential logic system.

Q.2 B   Answer in brief (Any 1 out of 2)   **2 Marks**

1)   Define: 2 to 4 line decoder

2)   Define: 2 to 4 line Multiplexer

Q.2 C   Answer in detail (Any 1 out of 2)   **3 Marks**

1)   Short note on Register

2)   Explain: Register with parallel Load with diagram

Q.2 D   Write a note on (Any 1 out of 2)   **5 Marks**

1)   Explain: Bi-Directional Shift Register

2)   Explain: Ripple Counter

Q.3 A   Attempt the following   **4 Marks**

1)   Give meaning of m in formula n=m*re

2)   The second name of the error detection code.

3)   External interrupt come from _____ devices.

4)   In the general register origination, the information from the output bus is received by

Q.3 B   Answer in brief (Any 1 out of 2)   **2 Marks**

1)   Perform multiplication 1011 * 011=_____.

2)   What is parity bit ?

Q.3 C   Answer in detail (Any 1 out of 2)   **3 Marks**

1)   Find S,M,E in the given number : (- 0.00010110)

2)   Perform multiplication 110.110 * 10.10 = _____.

Q.3 D   Write a note on (Any 1 out of 2)   **5 Marks**

1)   Perform arithmetic operation (+42) + (-13) and (-42) – (-13) in binary using signed 2's

Complement representation for negative numbers.

2) Short note on : Floating-Point Representation

Q.4 A   Attempt the following   **4 Marks**

1) In the general register organization, the information from the output bus is received by_____.

2) _____ performs the required micro operation in CPU.

3) _____ register capable to perform an addition and store result into itself.

4) _____ interrupts initiated by an illegal or errorneous use of an instruction.

Q.4 B   Answer in brief (Any 1 out of 2)   **2 Marks**

1) Give Reverse Polish Notation of: A+B*[C*D+E*(F+G)]

2) Define: Working of ALU with diagram.

Q.4 C   Answer in detail (Any 1 out of 2)   **3 Marks**

1) Explain: Accumulator Organization

2) Explain: Types of Interrupts

Q.4 D   Write a note on (Any 1 out of 2)   **5 Marks**

1) Explain: General Register Organization

2) Write a sequence of microoperations for PUSH and POP in a 64-word stack.

Q.5 A   Attempt the following   **4 Marks**

1) _____ register holds the number of words to be transferred and decremented by one.

2) Each peripheral device has associated with their _____ to communicate with I/O buses.

3) True or False: CPU has limited data transfer speed between main memory & secondary memory.

4) A special kind of processor designed to facilitate I/O instruction is called _____.

Q.5 B   Answer in brief (Any 1 out of 2)   **2 Marks**

1) How many methods of transfer take place in DMA?

2) Mention the application of DMA.

Q.5 C   Answer in detail (Any 1 out of 2)   **3 Marks**

1) Explain different modes of transfer between CPU & I/O Devices.

2) Draw the block diagram of memory buses & explain how they communicate with peripheral & CPU.

Q.5 D   Write a note on (Any 1 out of 2)   **5 Marks**

1) Explain: IOP

2) Explain: DMA Controller