PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B. Tech. Winter 2021 - 22 Examination

Semester: 4th   **Date: 21/10/2021**
Subject Code: 203105253   **Time: 10:30am to 1:00pm**
Subject Name: Computer Organization & Architecture   **Total Marks: 60**

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 **Objective Type Questions** - (All are compulsory) (Each of one mark)   **(15)**
1   The return address of the Sub-routine is pointed to by _____

2   In interrupts, how does the device identify itself to the processor?
    a) By sending its device id   b) By sending the machine code for the interrupt service routine
    c) By sending the starting address of the service routine   d) None of the mentioned

3   The main memory is structured into modules each with its own address register called _____

4   The time lost due to the branch instruction is often referred to as _____

5   LDA Means_____.

6   The product of 1101 & 1011 is _____
    a) 10001111   b) 10101010   c) 11110000   d) 11001100

7   The logic operations are simpler to implement using logic circuits.
    a) True   b) False

8   In a normal adder circuit, the delay obtained in a generation of the output is _____

9   The Master strobes the slave at the end of each clock cycle in Synchronous BUS.
    a) True   b) False

10   Can a single DMA controller perform operations on two different disks simultaneously?
    a) True   b) False

11   What functionality of RAM memory prevents it being used for long - term storage?
    A) it is too slow   (B) it is unreliable   (C) it is volatile   (D) it is too bulky

12   A symbolic programme is interpreted into binary in
    (a) Directly   (b) Three passes.   (c) Four passes.   (d) Two passes

13   If the target operand's value V(x) is contained in the address field, the addressing mode is
    (A) direct   (B) indirect   (C) implied   (D) none of the above

14   A _____is a binary cell capable of storing information of one bit.

15   If compared to floating point numbers, arithmetic operations with fixed-point numbers take
    longer to start executing.   (a)true   (b)false

Q.2 Answer the following questions. (Attempt any three)   **(15)**
    A) While Execution of program in Basic computer. An Instruction is Stored into IR Register for
    Decoding process. Demonstrate the decoding process with a block diagram
    B) Differentiate between hardwired and micro programmed control unit.
    C) List out different types of addressing modes.
    D) Explain any 2 pipeline hazards in details

Q.3 A) Design and explain instruction pipeline   **(07)**
    B) Design flowchart for basic instruction cycle   **(08)**
                                OR
    B) Design micro programmed control unit.   **(08)**

Q.4 A) Design Block diagram of hardware for addition and subtraction   **(07)**
                                OR
    A) Explain any 3-instruction codes.   **(07)**
    B) Explain any 4-arithmatic instruction.   **(08)**