



# Avinashilingam Institute for Home Science and Hr Education for Women

(Deemed to be University Estd. u/s 3 of UGC Act 1956, Category 'A' by MHRD)  
Re-accredited with 'A++' Grade by NAAC. Recognised by UGC Under Section 12B  
Coimbatore - 641 043, Tamil Nadu, India

## Continuous Internal Assessment Test I – August 2025 I SEMESTER

Class: I UG

Major: Computer Science

Time: 2 hours

Maximum Marks: 60

### 23BCSC02- Computer System Architecture

#### Course Outcomes:

At the end of the course, students will:

1. Apply Boolean Logic in circuit design with gates and other digital hardware
2. Distinguish the application of various micro-operations in Register Transfer Language.
3. Handle the various parameters related to instruction execution.
4. Understand the control unit implementation and CPU instruction handling.
5. Appraise the various information storage - retrieval concepts and I/O transfer methods

#### Part-A

6x1=6

#### Choose the correct answer

1. In the \_\_\_\_\_ function each term known as min term CO1K1  
a. SOP      b. POS      c. Hybrid      d. Both SOP and POS
2. The \_\_\_\_\_ is a combinational logic circuit with two inputs and two outputs CO1K1  
a. Full adder      b. N-bit parallel      c. Single adder      d. Half adder
3. RTL stands for CO2K2  
a. Random transfer Language      b. Register transfer Language  
c. Resistor transfer Language      d. Register Transfer Level
4. The operations executed on data stored in registers, are called \_\_\_\_\_ CO2K1  
a. Byte operation      b. Micro operation      c. Macro operation      d. Bit operation
5. What is the correct pattern of control word? CO2K1  
a. SELD, SELA, SELB, OPR      b. SELD, SELA, SELB, OPR  
c. SELD, SELA, SELB, OPR      d. OPR, SELA, SELB, SELD
6. Which of the following computer register collects the result of computation? CO3K1  
a. Accumulator      b. Instruction Pointer      c. Storage register      d. Address Register

#### Part- B

3x6=18

#### Answer ALL Questions

Each answer should not exceed 400 words or two pages

7. a. Differentiate between fixed-point and floating-point representation. CO1K2  
(or)
7. b. State and explain De-Morgan's theorem CO1K2
8. a. Design and explain Half subtractor CO1K5  
(or)
8. b. Draw 3 to 8-line decoder logic diagram and truth table CO1K1
9. a. Explain register transfer language with example CO2K2  
(or)
9. b. List basic computer registers with their functions CO3K1

#### Part-C

3x12=36

#### Answer ALL questions

Each answer should not exceed 800 words or four pages

10. a. Define Logic Gate and discuss various gates with diagram and their truth table CO1K1  
(or)
10. b. Simplify the Boolean function by using k-map technique and construct logic circuit CO1K2  
 $F(A, B, C, D) = \sum m(0, 1, 3, 5, 6, 7, 10, 13, 14, 15)$
11. a. Explain the working of the following i) S-R flip-flop      ii) D flip-flop.      iii) J-K flip-flop CO1K2  
(or)
11. b. What is a micro-operation? List and explain its types in detail CO2K1
12. a. Draw and explain the construction of a bus system using multiplexer CO3K3  
(or)
12. b. Briefly discuss on Instruction codes CO2K1

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