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Daffodil International University

Department of Software Engineering
Faculty of Science & Information Technology
Final Examination, Spring 2024

Course Code: SE222 **Course Title: Computer Architecture**

Sections & Teachers: FBR, KBB, NJM, SS, SUP

Time: 2:00 Hrs **Marks: 40**

Answer ALL Questions

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1.	a)	**Interpret** the performance parameters of memory and show the measurement of memory performance.	[Marks-5]	CLO-2 *Level 2*
	b)	**Explain** the structure of a cache memory system with a proper diagram.	[Marks-5]	
2.	a)	**Demonstrate** the advantages and disadvantages of direct mapping and associative mapping with diagrams.	[Marks-5]	CLO-3 *Level 3*
	b)	**Illustrate** Set Associative mapping from main memory to cache with diagram.	[Marks-5]	
	c)	**Apply** the Booth's algorithm for 2's complement multiplication for the following values: Multiplier: -5 Multiplicand: -7	[Marks-5]	
	d)	**Illustrate** the block diagram of hardware for addition and subtraction.	[Marks-5]	
3.	a)	**Integrate** with two address representation verifying the following expressions: $X = (A + B \times C)/(D - E \times F)$	[Marks-5]	CLO-4 *Level 3*
	b)	**Construct** the following floating point binary numbers into decimal. Assume 14 bits for the mantissa and 8 bits for the exponent, both in two's complement. 0.01101110010100000000011	[Marks-5]	

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