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Daffodil International University

Faculty of Science & Information Technology

Mid-Term Examination, Spring 2023

Course Code: CSE411: Course Title: Computer Architecture and Organization

Level: 4 Term: 1 Batch: 56

Time: 1.5 Hrs **Marks: 25**

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)	Suppose, Two instructions are in your system. One is [A+(2*B)]-[(C+D)*5], another is [A+(2*D)]+E. The system is designed in the variable-length instruction format. The memory addresses of the two instructions are 122DEF H and 879FF H. **Construct** the equivalent assembly code of the first instruction in a two-operand instruction format.	[3]	CO3
	j	In the second instruction, the last operand E is stored at first in the given memory address and subsequently, the others are stored. **Identify** the reason behind this.	[4]	
	c)	**Construct** the organization of the computer system which was invented from the motivation of Babbage's Difference Engine.	[3]	
2.	a)	Two students were asked to design an adder of two bits. Their teacher gives them two numbers as their input string to test their system. The numbers are $(4134.6875)_{10}$, $(ABCD.EF)_{16}$ respectively. By doing the necessary calculation, they constructed the adder. **Show** the given numbers in one number system, then convert them into a machine-readable number system.	[4]	CO1
	b)	**Define** the types of equipment that were used for computation before inventing electronic computers.	[2]	
	c)	**Which** computer was used to transfer information between the CPU and the main memory?	[2]	
3.	a)	Integrated circuits can allow more transistors to make a system in a tiny piece of chip. **Illustrate** the structure from which generation IC is invented.	[3]	CO2
	·j	To improve the performance in the case of Programming, **demonstrate** two advanced features of the commercial microprocessor.	[4]	