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Daffodil International University

Faculty of Science & Information Technology

Department of Computer Science & Engineering

Midterm Examination, Spring 2025

Course Code: CSE112, Course Title: Computer Fundamentals

Level: 01 Term: 01 Batch: 68

Time: 01:30 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)***	Explain how the different phases of the computer data processing cycle—input, processing, output, and storage—are used in a modern e-commerce system. Provide examples of how data flows through these phases in an online shopping platform.	**5**	**CO1**
2.	***a)***	Compare the hardware and software advancements in 5^{th}-generation computers with those of the 4^{th}-generation. How have these improvements facilitated the development of artificial intelligence?	**4**	**CO1**
	b)	Summarize the functioning of the control unit and ALU in a processor. How do these components work together to execute an instruction cycle?	**3**	
	c)	Explain why multi-core processors improve performance over single-core processors.	**3**	
3.	***a)***	Perform the following conversions. Show the step-by-step process and provide the final result. i. $(85.375)_{10} = (?)_2$ ii. $(132)_4 = (?)_6$	**4**	**CO2**
	b)	Perform the following binary operations and show all steps: i. 10000010- 01010111=? ii. Divide the binary number 11010101 by 101 using long division. Show the steps and provide the quotient and remainder.	**3**	
	c)	Apply the complementary method to subtract $(011100)_2$ from $(0101101)_2$. Show the steps involved in the process and explain how you handle the negative result.	**3**	