



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 <u>hardware</u> and <u>software</u> advancements in <u>5th-generation</u> computers with those of the <u>4th-generation</u> . How have these improvements facilitated the development of <u>artificial intelligence</u> ?	4	CO1
	b)	Summarize the <u>functioning</u> of the <u>control unit</u> and <u>ALU</u> in a processor. How do these components work together to execute an instruction cycle?	3	
	c)	Explain why <u>multi-core processors</u> improve performance over <u>single-core processors</u> . <i>core, core, thread</i>	3	
3.	a)	Perform the following conversions. Show the step-by-step process and provide the final result. ✓ i. $(85.375)_{10} = (?)_2$ $(10101.011)_2$ ✓ ii. $(132)_4 = (?)_6$ $(50)_6$	4	CO2
	b)	Perform the following binary operations and show all steps: ✓ i. $1000010 - 0101011 = ?$ $00101011_2 = 42_{10}$ $30_{10} - 15_{10} = 15_{10}$ $(4+8+16) - (1+4+8+32)$ ✓ ii. Divide the binary number 11010101 by 101 using long division. Show the steps and provide the quotient and remainder. 101010.10	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	

$128 + 64 + 16 + 4 + 1 = 230$

$128 \quad 64 \quad 32 \quad 16 \quad 8 \quad 4 \quad 2 \quad 1$

$1 \quad 1 \quad 0 \quad 1 \quad 0 \quad 1 \quad 0 \quad 1$

$1010101 = 230$

$101 = 5$

$1010101 \div 101 = 230$

$1010101 - 1010101 = 0$