Daffodil International University

Faculty of Science & Information Technology
Department of Computer Science & Engineering
Final Semester Examination, Fall 2024
Course Code: CSE112, Course Title: Computer Fundamentals
Level: 1 Term: 1 Batch: 67

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)	i. Explain the tasks of Process Management and File Management performed by an Operating System (OS). ii. Compare and contrast Fixed Wireless Systems and Mobile Wireless Systems.	[6]	CO1
	b)	Why plagiarism is considered unethical in academic and professional settings? List two ways to avoid plagiarism while writing an article or research paper.	[4]	
2.	a)	i. Computers do not perform subtraction like humans; instead, they use an additive approach. Using this method, calculate the result of subtracting 152_{10} from 78_{10}. ii. Divide 100011_2 by 111_2 iii. Subtract 10111_2 from 1010000_2	[6]	CO2
	b)	Show- how can we represent $10001.010_2 \times 10^{-8}$ into an IEEE 754 binary 16 bit format?	[4]	
3.	a)	You are a hardware engineer working for a renowned hardware company. Your task is to evaluate and optimize the given expression, which is expensive to produce. As part of your responsibility, you need to design the circuit for the given expression and create a cost-efficient version of the provided circuit. $BC+(\overline{0}\overline{B}+D0)C$	[6]	CO3
	b)	Now, obtain the truth table for the output expression and compare it with the simplified expression.	[4]	
4.	a)	Emma, a software developer working on an e-commerce platform, is tasked with designing a system to calculate the total cost of items in a shopping cart. The system must consider each item's price and quantity, apply a 10% discount if the total cost exceeds $100, and display the final amount after applying the discount if applicable. To approach this task, Emma decides to create an algorithm and a flowchart to visualize the process before coding. Your task is to design a flowchart representing this process and write a step-by-step algorithm for calculating the final cost.	[6]	CO4
	b)	Discuss the **advantages** and **limitations** of Assembly Language.	[4]	