



# Daffodil International University

Faculty of Science & Information Technology

Department of Computer Science & Engineering

Mid Examination, Spring 2025

Course Code: CSE223 , Course Title: Digital Logic Design

Level:2 Term:2 Batch:65

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)	Show the conversion of the following number system: 1. $(52543)_7$ to $(?)_9$ 2. $(101101)_2$ to decimal and $(27)_{10}$ to binary.	5	CO1
	b)	Draw the logic circuit using universal NAND gates to implement the following function: $F(A, B, C) = AB' + A(B + C') + B(B + C)$	5	
2.	a)	Convert the Boolean function $F(A, B, C, D) = A'B + AC' + D$ into SOP (Sum of Products) and POS (Product of Sums) form.	5	CO2
	b)	If the Boolean expression, $F = X'Z' + W'Z$ is a simplified form of Boolean function $F = W'X'Y + W'X'Y' + W'XYZ + X'YZ' + WX'Z'$ . Then <b>apply</b> your problem-solving skills to identify whether there are any don't care conditions or not.	5	
3.	a)	Suppose, You are working in an industry that fabricates decoders and basic logic gates. A client has placed an order for a full adder circuit. However, your company does not directly manufacture full adders. Using only a decoder and basic logic gates, <b>design</b> a full adder circuit.	5	CO3