

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

Marks: 25

Time: 01:30 Hrs

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: $F(A, B, C) = AB^{9} + A(B + C^{9}) + B(B + C)$	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 apply your problem-solving skills to identify whether there are any don't care conditions or not.	5	
3.	<i>a</i>)	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, design a full adder circuit.	5	CO3