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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 **apply** 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, **design** a full adder circuit.	5	CO3