



**Daffodil International University**  
**Department of Software Engineering**  
**Faculty of Science & Information Technology**  
**Midterm Examination, Fall 2023**

**Course Code: SE 213; Course Title: Digital Electronics & Logic design**  
**Batch: 40 & 38; Sections: All**

**Time: 1:30 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)	Develop the truth table and circuit diagram of the following Function $F = xy(y' + z) + x'z'$	[Marks-4]	CLO-1 Level-3
	b)	Utilize 2's complement method to Subtract the binary numbers $101101 - 110011$	[Marks-3]	
	c)	Explain why the NOR gate is referred to as a universal gate.	[Marks-3]	
2	a)	$Y = BC + AC' + AB + BCD$ $\downarrow \downarrow \quad \downarrow \downarrow \quad \downarrow \downarrow \quad \downarrow \downarrow$ Apply k-map simplification technique to simplify the above expressions. Construct the logic diagrams of the simplified output.	[Marks-4+3]	CLO-2 Level-3
	b)	Check the following function. Interpret in sum of minterms & convert it to product of maxterms form. $F(W, X, Y, Z) = Z(W' + X) + X'Z$	[Marks-8]	

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