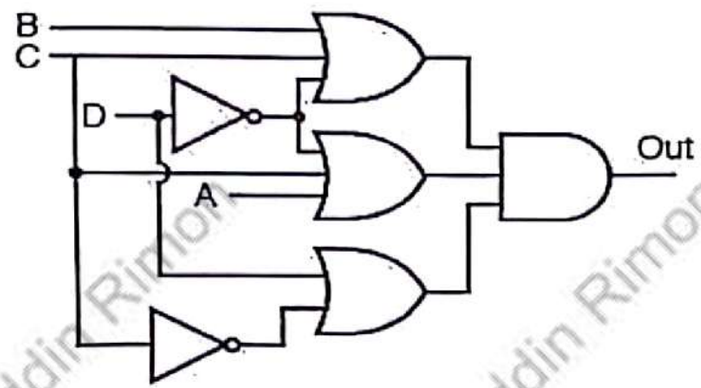
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Daffodil International University
Department of Computer Science and Engineering
Faculty of Science & Information Technology
Midterm Examination, Fall-2023
Course Code: CSE223, Course Title: Digital Electronics
Level: 2 Term: 2 Batch: 62
Time: 1 Hour and 30 Minutes **Marks: 25**

Answer ALL Questions [Optional]
[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 for the following number system: i) $(3256)_9 = (?)_5$ ii) $(421.143)_6 = (?)_{10}$	4	**CO1**
	b)	 Identify the Boolean Expression of 'Out' from the following circuit diagram.	4	
2.	*a)*	F= X+X'Z'(Y+Z) Translate the following Boolean expression into Product of Maxterm	4	**CO2**
	b)	Construct the simplified expression of following Boolean function using Boolean identities: F(A,B,C)=A'B'C'+ABC+A'BC+AB'C'+AB'C'+A'B'C+A'BC'	4	
	c)	Simplify the following equation using K-map: $F(A,B,C,D) = \Sigma(0, 1, 5, 6, 8, 13,15) + d(2, 4, 10,12)$	4	
3.	*a)*	Suppose you employed at a technology-oriented corporation. The task at hand involves the development of an Automated Fan Control System that operates based on the quantity of illuminated lights within the office room, specifically focusing on bulbs with power ratings of 5w, 10w, and 15w. The job at hand requires the development of an integrated circuit in accordance with the given scenario. The fan will be activated automatically if at least two lamps are switched on; else, it will remain in its current state. Now you have to Develop a Truth table, Boolean expression and Circuit diagram for this system.	5	**CO3**