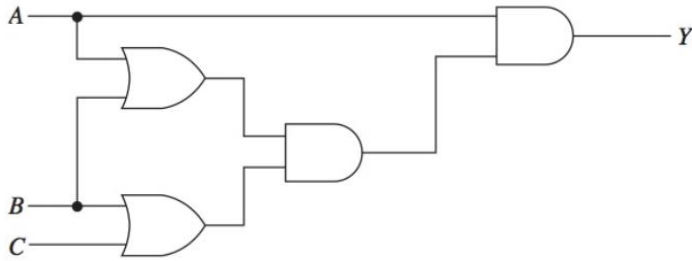**Student's Name**_____

Instructions:

- Show all work to receive full credit

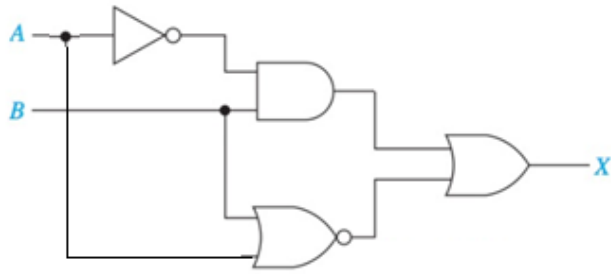**Boolean Analysis of Logic Circuits**

Question 1) Find the output and use Boolean algebra to simplify the output. Also sketch the simplified circuit.

a. (4 pts) Output Y _____

b. (9 pts) Simplified output Y _____
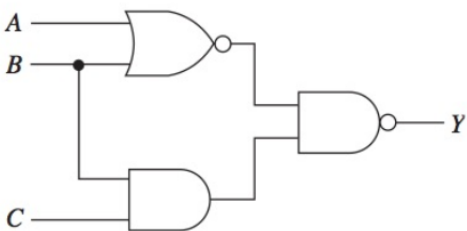
c. (2 pts) Draw the simplified circuit

Question 2 and 3) Find the output X and use Boolean algebra and DeMorgan's theorem to simplify the output. Also sketch the simplified circuit.

2.

a. (5 pts) Output X _____

b. (11 pts) Simplified output X _____

c. (2 pts) Draw the simplified circuit

3.

a. (5 pts) Output X _____
b. (11 pts) Simplified output X _____
c. (2 pts) Draw the simplified circuit

Question 4) Simplify the following output using Boolean algebra and/or DeMorgan's techniques (11.5 pts a-b, 13 pts c-d)

a. $X = AB + (\bar{A} + \bar{B})C + AB$

b. $Z = \bar{A}B + \bar{A}B\bar{C} + \bar{A}BCD + \bar{A}B\bar{C}\bar{D}E$

c. $W = \overline{\overline{\overline{A}} + B.BC} + \bar{B}C$

d. $Y = \overline{(A + \bar{B})(\bar{C} + D)}$