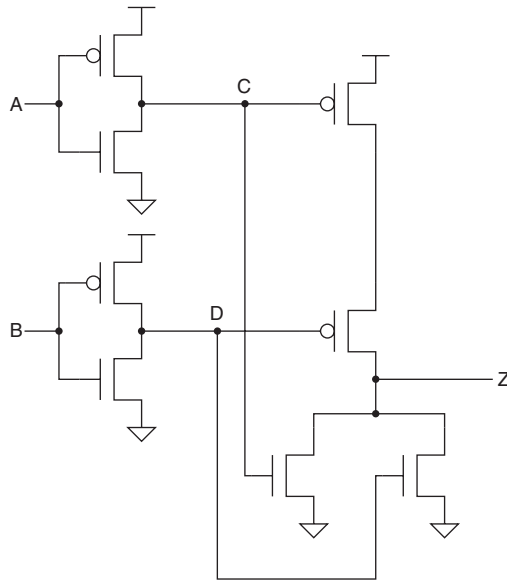


## CS150 - Computer Organization and Architecture Homework #2 - Spring 2024

1. Fill in the truth table corresponding to the transistor-level circuit shown below.



| A | B | C | D | Z |
|---|---|---|---|---|
| 0 | 0 |   |   |   |
| 0 | 1 |   |   |   |
| 1 | 0 |   |   |   |
| 1 | 1 |   |   |   |

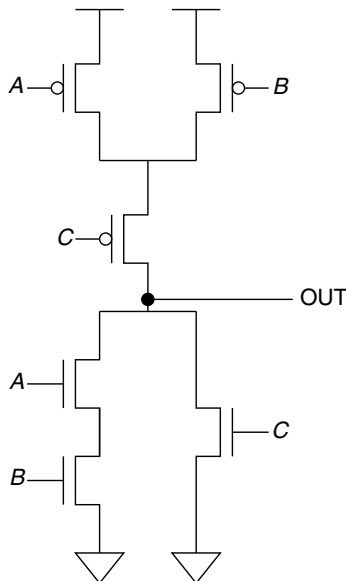
2. Referring back to the transistor-level circuit shown in Problem 1, what is **Z** in terms of **A** and **B**?

3. Fill in the truth table below:

| A | B | NOT(NOT(A) OR NOT(B)) |
|---|---|-----------------------|
| 0 | 0 |                       |
| 0 | 1 |                       |
| 1 | 0 |                       |
| 1 | 1 |                       |

4. Referring back to the truth table in Problem 3, what single logic gate has the same truth table?

5. Fill in the truth table corresponding to the transistor-level circuit shown below.



| A | B | C | OUT |
|---|---|---|-----|
| 0 | 0 | 0 |     |
| 0 | 0 | 1 |     |
| 0 | 1 | 0 |     |
| 0 | 1 | 1 |     |
| 1 | 0 | 0 |     |
| 1 | 0 | 1 |     |
| 1 | 1 | 0 |     |
| 1 | 1 | 1 |     |