

**Special Problem 4.10-9**

The circuit below is a simple **digital inverter**.

For this inverter, **0.0 V** is the ideal "low" logic state, and **5.0 V** is the ideal "high" logic state.

Determine **approximately** (using any valid **simplifying approximation**) the value of  $V_{OL}$  for this inverter.

**Hint 1:**  $V_{OL}$  is not equal to zero!

**Hint 2:** However,  $V_{OL}$  will be a **very small** value, so use any appropriate **MOSFET approximation** in order to **quickly** determine  $V_{OL}$ .

