**Step 10A: Table 1: Voltage-Current Characteristics for the 2N7000 MOSFET nnlnn**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **=2.4V** | **=2.5V** | **=2.6V** |
| **(V)** | **(mA)** | **(mA)** | **(mA)** |
| 0.0 | 0.0 | 0.0 | 0.0 |
| 0.2 | 3.89 | 6.72 | 10.55 |
| 0.4 | 4.41 | 7.96 | 13.33 |
| 0.6 | 4.454 | 8.27 | 14.00 |
| 0.8 | 4.426 | 8.27 | 14.4 |
| 1.0 | 4.404 | 8.25 | 14.8 |
| 1.2 | 4.38 | 8.34 | 15.3 |
| 1.4 | 4.37 | 8.30 | 15.8 |
| 1.6 | 4.356 | 8.31 | 16.3 |
| 1.8 | 4.386 | 8.33 | 16.8 |
| 2.0 | 4.433 | 8.33 | 17.6 |
| 2.5 | 4.54 | 8.64 | 19.5 |
| 3.0 | 4.90 | 8.85 | 21.8 |

**Step 10B: Table 2: Voltage-Current Characteristics for the 2N7000 MOSFET, with at a constant voltage of 3V**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **(V)** | **(mA)** |  | 1.8 | 0.012 |  | 2.7 | 29.56 |
| 1.0 | 0.000 |  | 1.9 | 0.040 |  | 2.8 | 40.1 |
| 1.1 | 0.000 |  | 2.0 | 0.131 |  | 2.9 | 53.5 |
| 1.2 | 0.000 |  | 2.1 | 12.38 |  | 3.0 | 68.5 |
| 1.3 | 0.000 |  | 2.2 | 13.81 |  | 3.1 | 88.0 |
| 1.4 | 0.000 |  | 2.3 | 16.88 |  | 3.2 | 111.2 |
| 1.5 | 0.000 |  | 2.4 | 5.06 |  | 3.3 | 135.1 |
| 1.6 | 0.001 |  | 2.5 | 9.1 |  |  |  |

Step 11:

Threshold Voltage can be found by inspection of our data at 2.1v

From there Vov = Vgs – Vt

Thus

K = 175 mA/v^2 for every volt over 2.1v

Step 12: Graph Table 1

Add additional trendlines and whatever read the damn lab doc

Step 13:

Answer question

Step 14:

Part 3:

Step 1: Answer later

Step 2: Pspice simulation

Step 8: The threshold voltage is 1.7v

**Part 4**:

Step 5: Gain = 1.85/0.1 = 18.5 v/v

Step 8’s graph is named step 6.

Step 9: CH2 0.50 v p/p

CH1 0.10 v p/p

5 v/v

Step 10: Simulated gain was much higher

Step 11:

**Part 5**:

Creating an AND Gate