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**COE 360, Principles of VLSI Design, Term 002
Scheduled Quiz# 2**

Date: Sunday, April 8

Q1. Assuming NMOS enhancement transistor threshold voltage V_{tn} of 1.0v, depletion transistor threshold voltage V_{td} of -2.0v, and PMOS enhancement transistor threshold voltage V_{tp} of -1.0 v, write down the voltages of the indicated nodes below. Assume that the body effect is negligible, and $W/L=2$ for all transistors.

Q2. An enhancement NMOS transistor is measured to have a drain current of $97 \mu\text{A}$ at $V_{\text{GS}}=V_{\text{DS}}=3\text{V}$, and of $433 \mu\text{A}$ at $V_{\text{GS}}=V_{\text{DS}}=5\text{V}$. Assume that $V_{\text{SB}}=0$ in both measurements. Determine the values of β (K_n) and V_{tn} for the transistor.