Name: **Id#**

COE 360, Principles of VLSI Design, Term 991
Quiz# 2

Date: Saturday, Oct. 9

Q1. Consider the transistor-level implementation of the 2-input gate shown below. Assume that the threshold voltages of the nMOS and pMOS transistors are V_{tn}=1v and V_{tp}=-1v.

(1) Determine the function implemented by the gate.

(2) Is there any problem with the given implementation? If there is a problem, then suggest a modification to the implementation to overcome the problem.

(3) Reimplement the gate function using only transmission gates and inverters.

Q2. Implement the following function in CMOS using the smallest possible number of transistors assuming the availability of inverted inputs:

Y = A` B` C` + A` B C + A C` D` + A C D