

# CSCE 5730: Digital CMOS VLSI Design

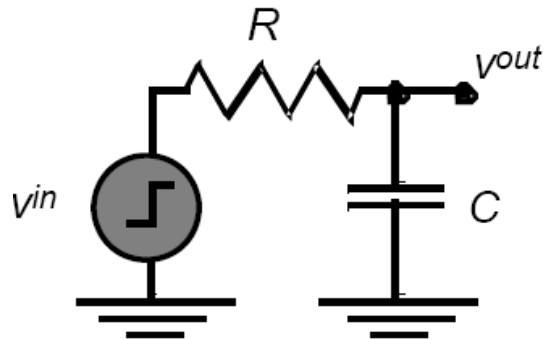
Assignment # 2, Total Marks =  $4 \times 25 = 100$ .

Assigned Date: 13<sup>th</sup> Feb 2008 (Wed), Due Date: 20<sup>th</sup> Feb 2008 (Wed)

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1. Consider the following RC circuit.



Find the transient response of the circuit for output voltage. What is the time to reach 50% point? What is the time to reach 90% point?

2. Using LTSpice do the transistor level static CMOS realization of basic logic gates (Inverter/NAND/NOR/AND/OR). Perform their simulation to verify the correctness.
3. Simulate the CMOS circuit of Example 6.2, page 240 of the text book using LTSpice. Verify that the truth tables of Boolean function and the circuit match.
4. Synthesize the Boolean function  $Y = (A*B + C*D)$ . Show all the steps. Verify the circuit functionality using LTSpice.