

# EE462G Final Projects:

## Logic Gates

1. What is a logic equation?

Use F as Output; Use A and B as Input A and Input B to write the equation. Example: for a NOT gate, an inverter,  $F = \bar{A}$ ; For an AND gate,  $F = AB$ .

2. What is a truth table?

A table with A and B values corresponding to the output F values.

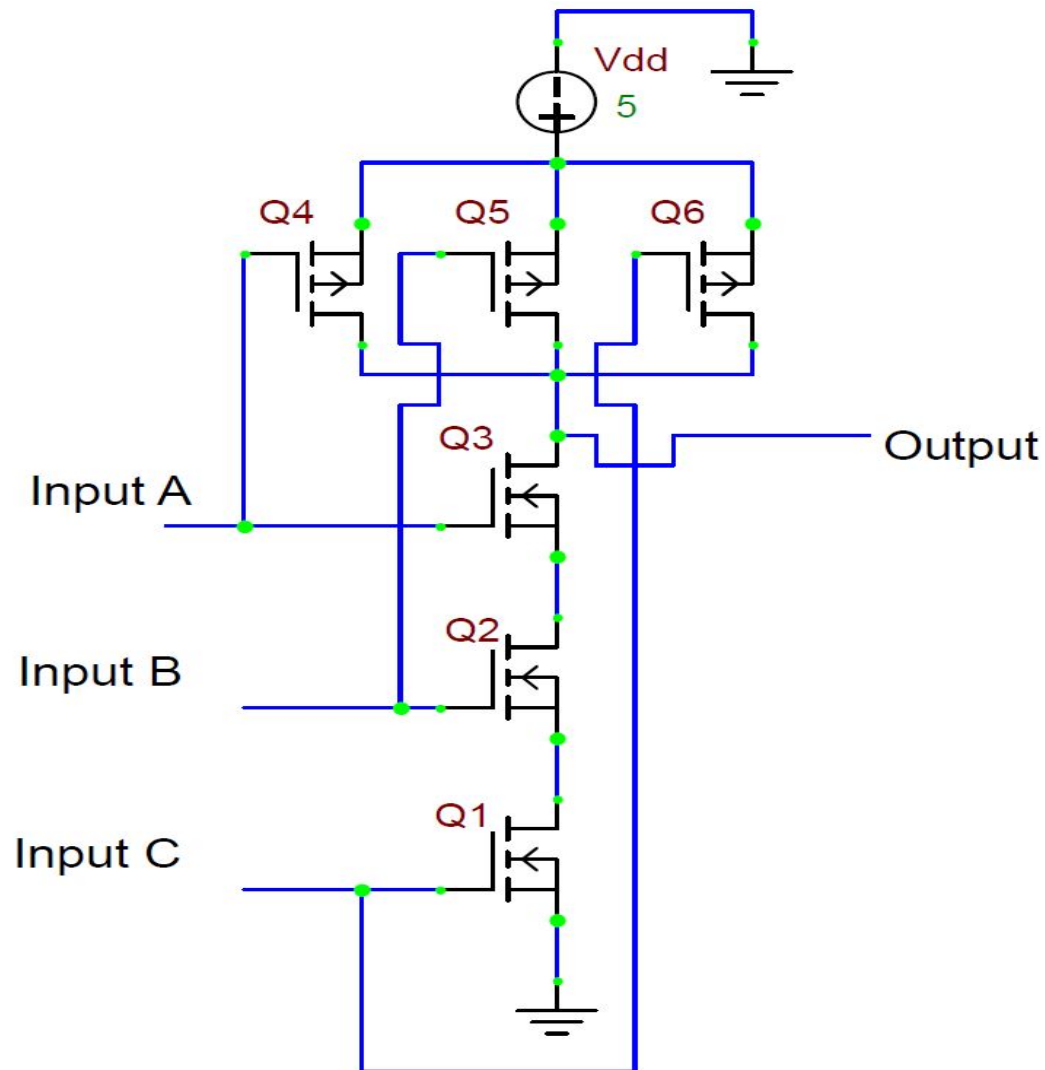
3. Either the NAND gate or the NOR gate is a universal gate, which can be used to construct all other logic gates.

# Spring 2015 EE462G Final Projects: Logic Gates

## Final Project Assignment

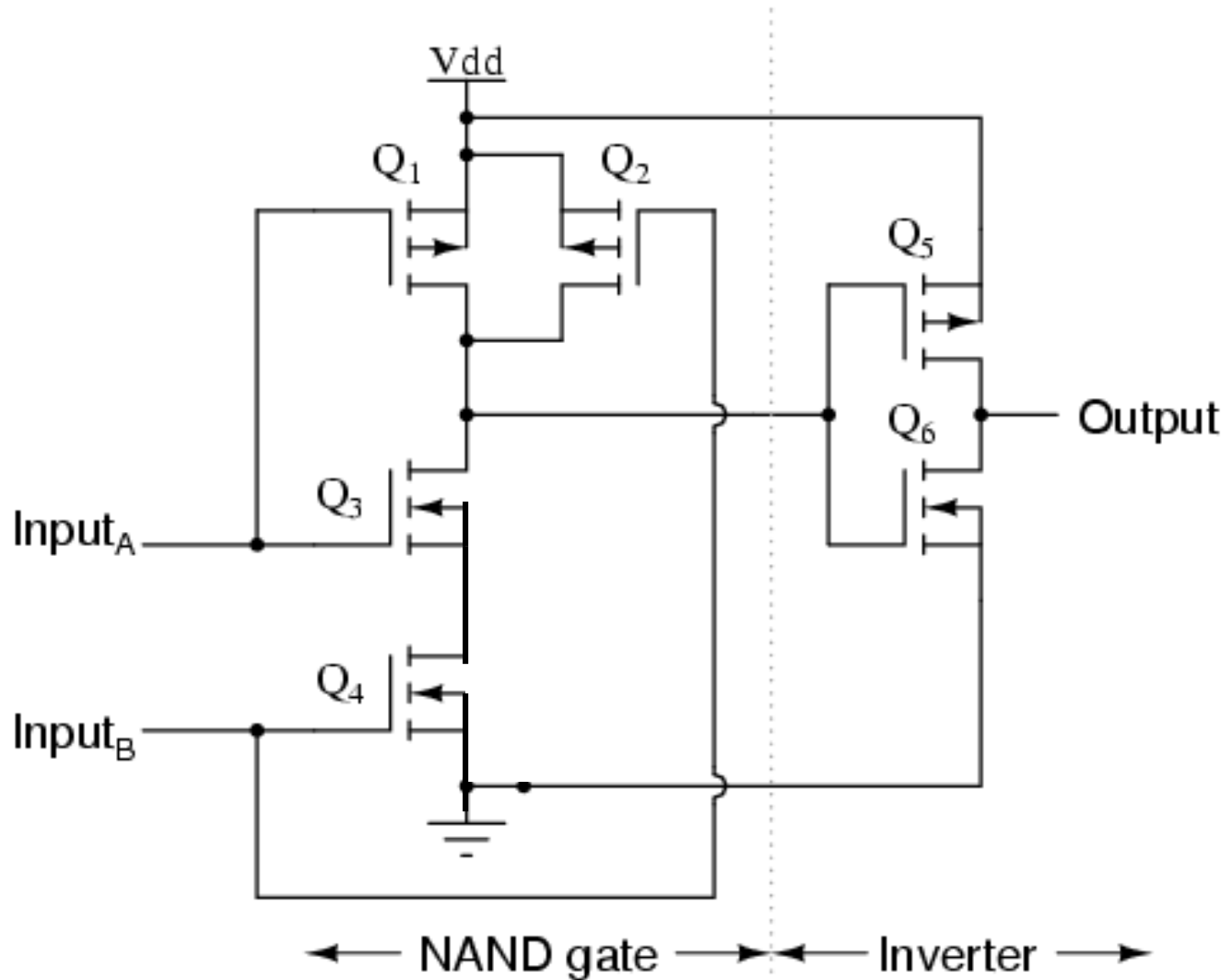
- Each Group needs to select one project from Project 2 or 3 and the other project is Project 1 which is mandatory for all groups.
- Write the logic equation and list its truth table of your assigned logic gate.
- Design the logic gate circuit and simulate its truth table using SPICE.
- Construct the logic gate circuit assigned to you in the lab.
- Write a final project report.
- Demonstrate its function based on its truth table and simulation on the days listed on the Tentative Schedule.

# Group Project 1: CMOS 3-Input NAND gate



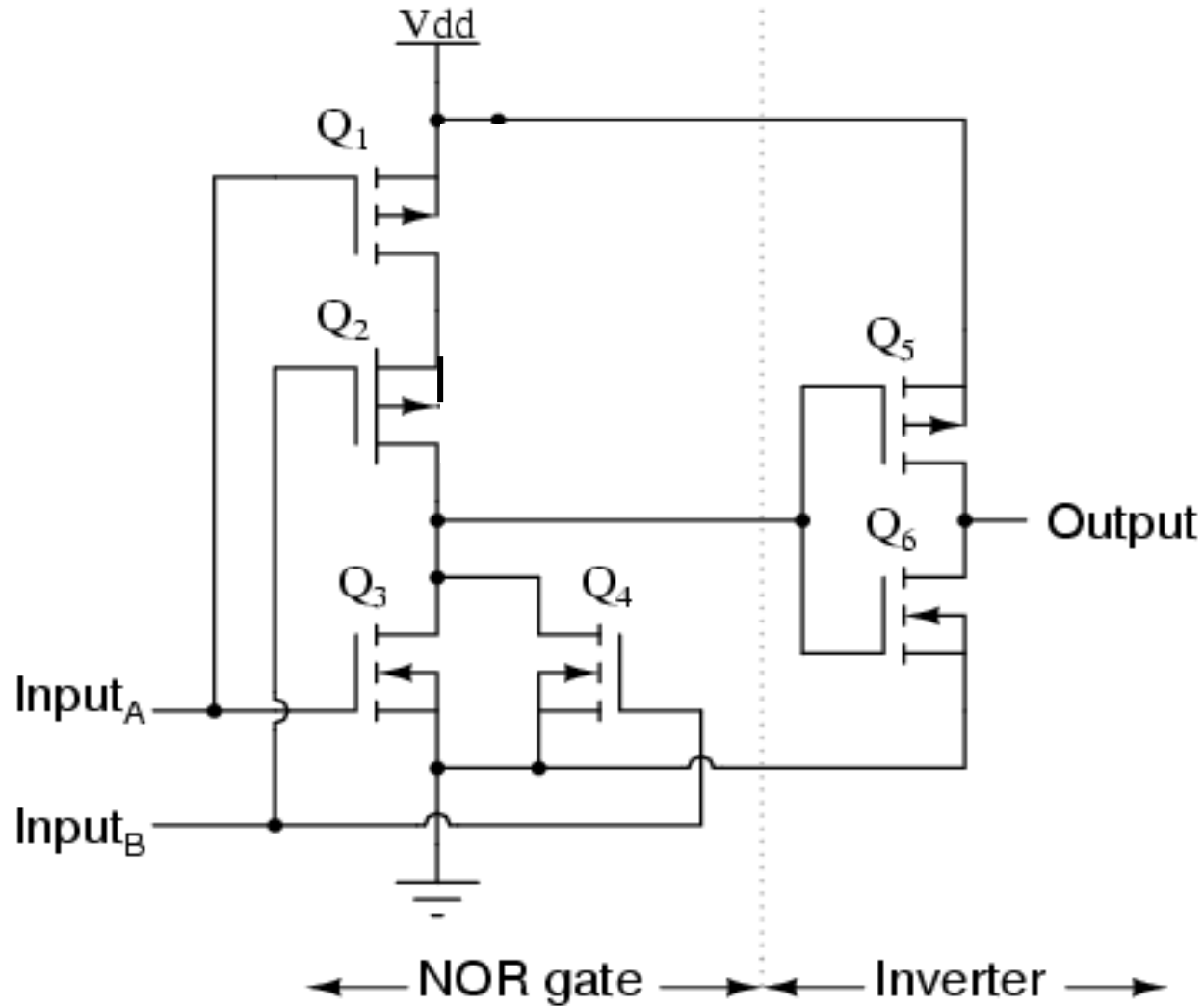
# Group Project 2: CMOS AND gate

*CMOS AND gate*



# Group Project 3: CMOS OR gate

*CMOS OR gate*



# **Assignment of Projects: Logic Gates**

**Each Group needs to do two projects. One project is selected from Project 2 or 3 and the other project is Project 1 which is mandatory for all groups.**