ECN-104 ECE 2023 **Assignment 4** **Deadline: 16 April 11:59pm**

1. Implement the following functions using multiplexers
   a. $F(A,B,C,D) = \sum(3,4,9,11,15)$
   b. $F(x,y,z) = \prod(2,4,5,7)$
2. Construct a J-K flipflop using a D flip-flop
3. Draw the CMOS implementation (Pull-Up Network and Pull-Down Network) for the following functions
   a. $F(A,B,C,D) = \sum(3,4,9,11,15)$
   b. $F(x,y,z) = \prod(2,4,5,7)$
   c. 4 input AND gate
   d. 4 input OR gate

4. For a given technology, NMOS and PMOS have on-state (conducting) resistance of 100Ω and off-state (non-conducting) resistance of $1M\Omega$. Calculate the output voltage if the input is (a) 1 and (b) 0. Assume supply voltage is 1V.