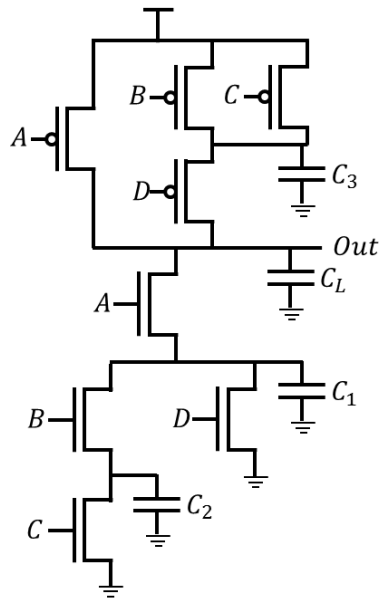


Homework Assignment 7 (Due 4:10pm, Mar. 20)

[Delay, 50 points] Compute the Elmore delay of the circuit shown below for the following inputs. R_n : Resistance of an NFET. R_p : Resistance of a PFET. C_L : Load capacitance. C_1, C_2, C_3 : Parasitic capacitances.



- (1) 10 points. ABCD = 1110. $\tau = R_n(C_3 + C_L) + R_n(C_1 + C_3 + C_L) + R_n(C_1 + C_2 + C_3 + C_L)$
- (2) 10 points. ABCD = 1000. $\tau = R_p(C_1 + C_L) + \frac{R_n}{2}(C_1 + C_3 + C_L)$
- (3) 10 points. ABCD = 1001. $\tau = R_n(C_L) + R_n(C_1 + C_L)$
- (4) 10 points. ABCD = 1010. $\tau = R_p(C_1 + C_L) + R_p(C_1 + C_3 + C_L)$
- (5) 10 points. ABCD = 0110. $\tau = R_p(C_3 + C_L)$