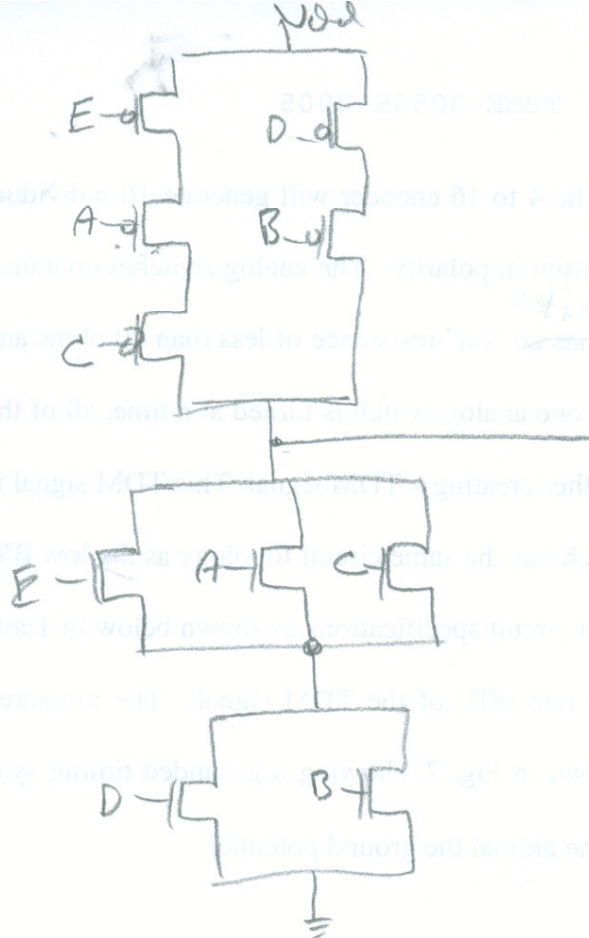


2)



- 3) **CUTOFF**  
 $V_{gs} < V_t$   $I_{ds} = 0$  where  $V_t = .7V$ ,  $\frac{W}{L} = \frac{4}{2}$ ,  $\mu_n = 350 \frac{cm^2}{V}$   
 $C_{ox} = \frac{3.9 \epsilon_0}{t_{ox}}$   
 $C_{ox} = 3.45 \times 10^{-7} \frac{F}{cm^2}$
- Linear**  $V_{ds} < V_{gs} - V_t$   $I_{ds} = \mu_n C_{ox} \frac{W}{L} (V_{gs} - .7 - \frac{V_{ds}}{2}) V_{ds}$
- Sat**  $V_{ds} > V_{gs} - V_t$   $I_{ds} = \frac{\mu_n C_{ox}}{2} \frac{W}{L} (V_{gs} - V_t)^2$

