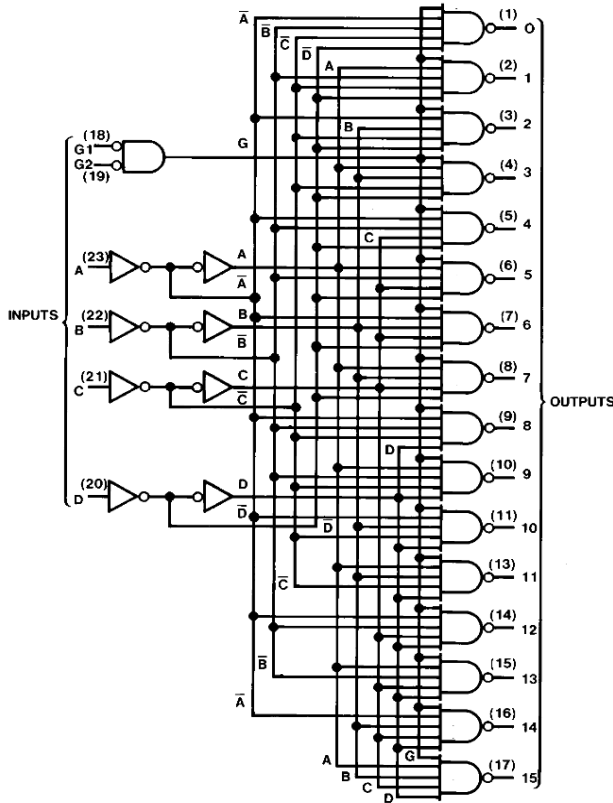
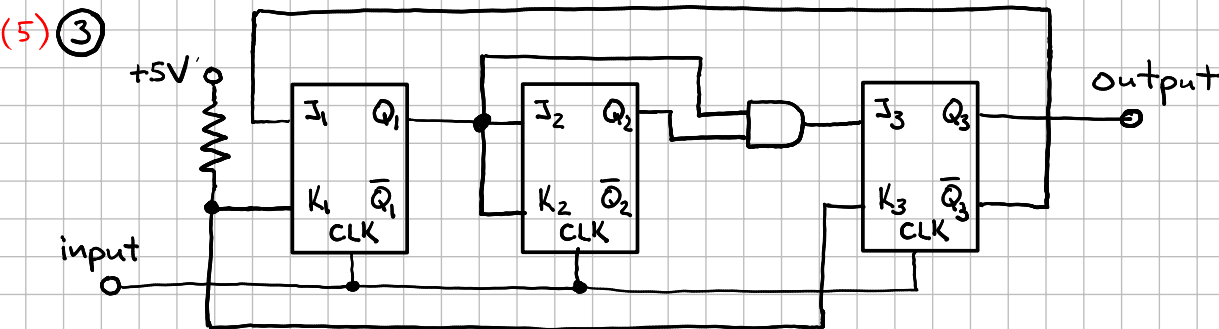


(5) ① Analyze a complex circuit:



- a) if $G1 = G2 = \text{low}$, what is the truth table? (2)
- b) allowing either of $G1$ or $G2$ to go high, what happens to the outputs? (2)
- c) what is this device? suggest possible uses. (1)

(5) ② Design a 4-output digital demultiplexer. It should have one data input D , four data outputs $Q_{1..4}$, and two select inputs $S_{1..2}$.



- a) draw the timing diagram for this circuit, showing Q_1, Q_2, Q_3 ($Q_3 = \text{output}$) and CLK ($= \text{input}$,) (4)
- b) what is the relationship between the input and output waveforms? what is this circuit called? (1)