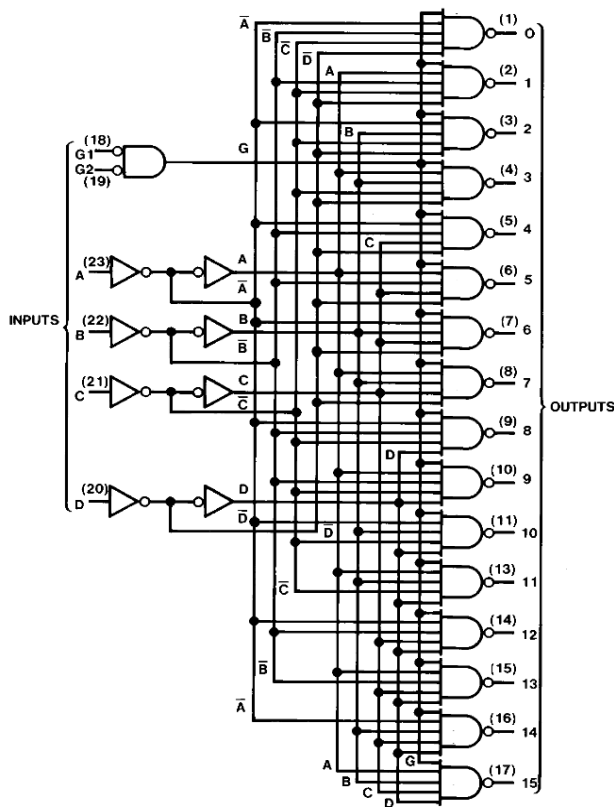


(5) ① Analyze a complex circuit:



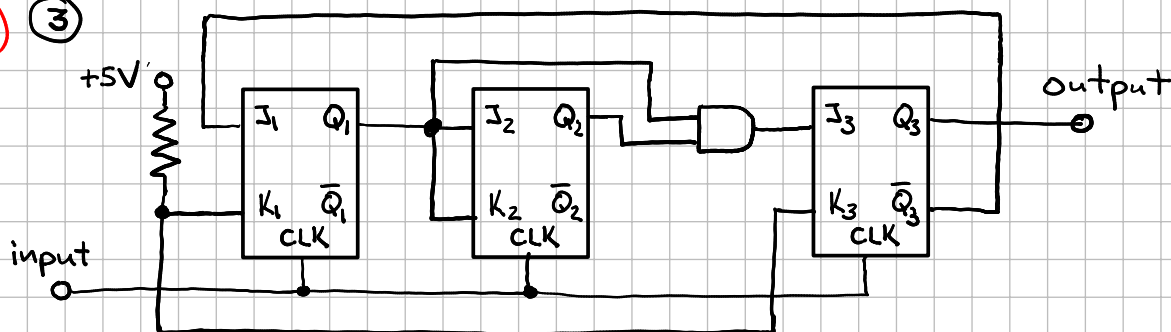
a) if $G1 = G2 = \text{low}$, what is the truth table?

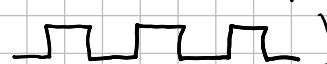
b) allowing either of $G1$ or $G2$ to go high, what happens to the outputs?

c) what is this device? suggest possible uses.

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

(3) ③



a) draw the timing diagram for this circuit, showing Q_1, Q_2, Q_3 ($Q_3 = \text{output}$) and CLK ($= \text{input}$, )

b) what is the relationship between the input and output waveforms? What is this circuit called?

(4) ④ EFTS p16-6: design the decoder logic for a 2-bit flash ADC.