GATE Question

January 19, 2024

1. Given below is the diagram of a synchronous sequential circuit with one $J-K$ flip-flop and one T flip-flop with their outputs denoted as A and B respectively, with $J_A = (A' + B')$, $K_A = (A + B)$ and $T_B = A$.Starting from the initial state $(AB = 00)$, the sequence of states (AB) visited by the circuit is (GATE-IN2021,36)

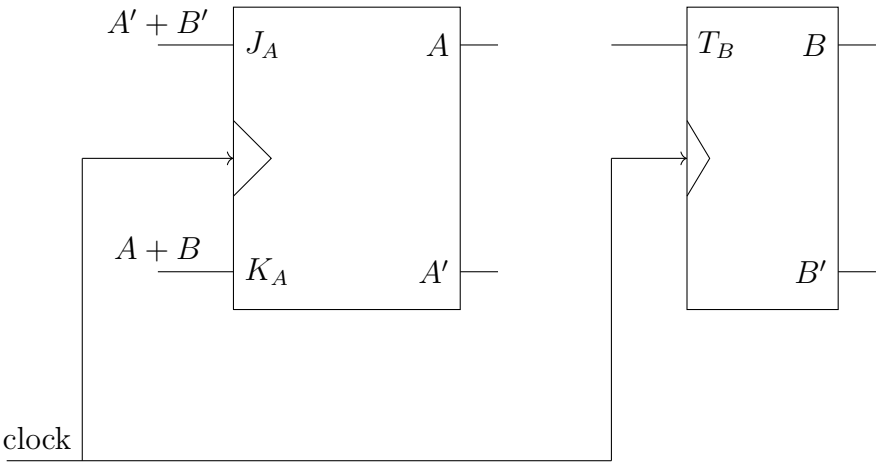

Figure 1: synchronous sequence circuit of J-K and T flipflop

(a) $00 \to 01 \to 10 \to 11 \to 00 \ldots$

(b) $00 \to 10 \to 01 \to 11 \to 00 \ldots$

(c) $00 \to 10 \to 11 \to 01 \to 00 \ldots$

(d) $00 \to 01 \to 11 \to 00 \ldots$