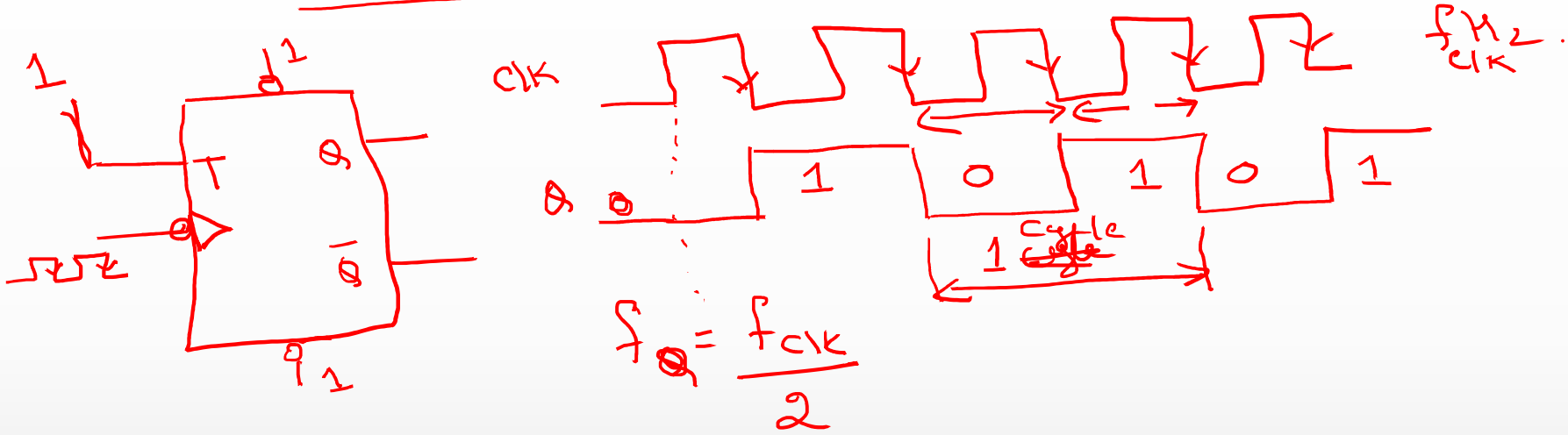
ASYNCHRONOUS COUNTER(RIPPLE COUNTER)

Counters:

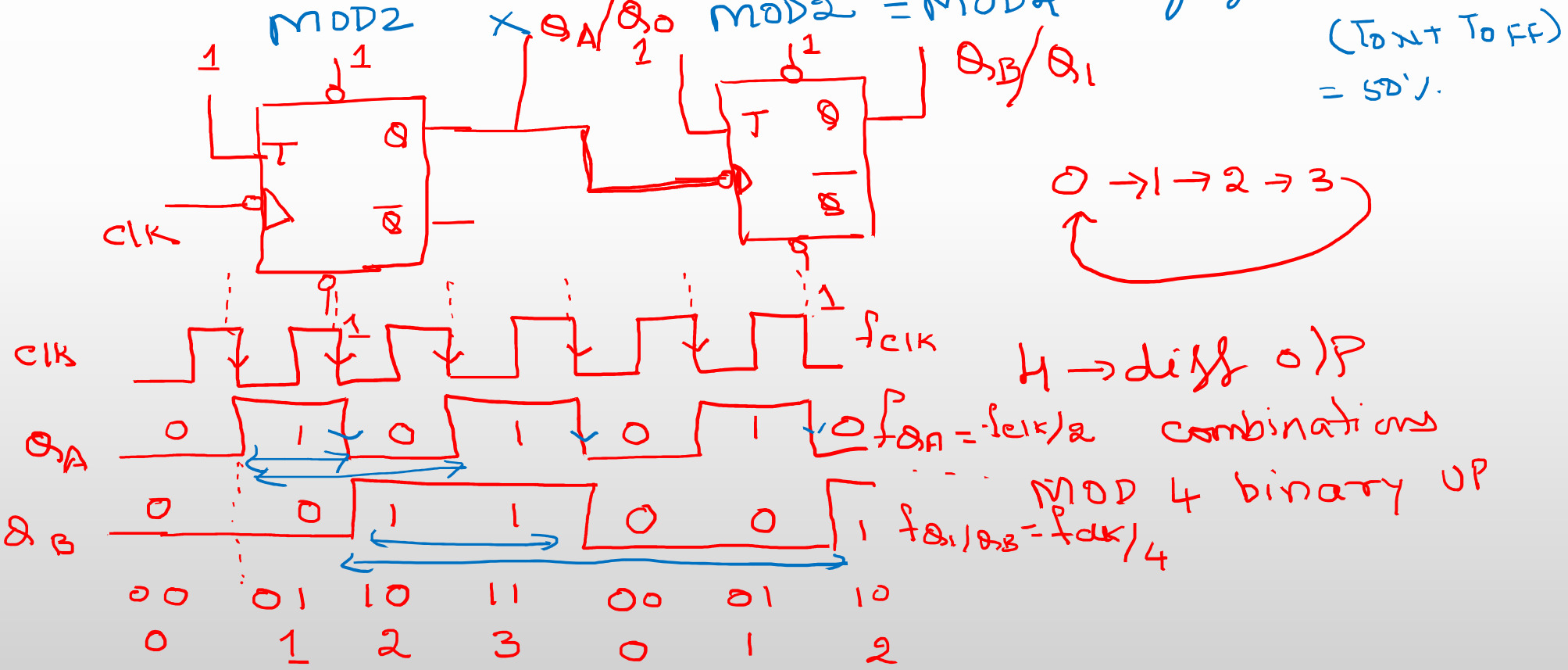
- Register that goes through prescribed sequence of states upon the application of input pulses is called a counter.
- There are 2 types of counters:
  - *Asynchronous counters (Ripple counters) :* Clock inputs are triggered by transitions of other flipflop.
  - *Synchronous counters :* The clock inputs of all flip flops receive common clock.

MOD 2 or divide by 2 Counter using T ff



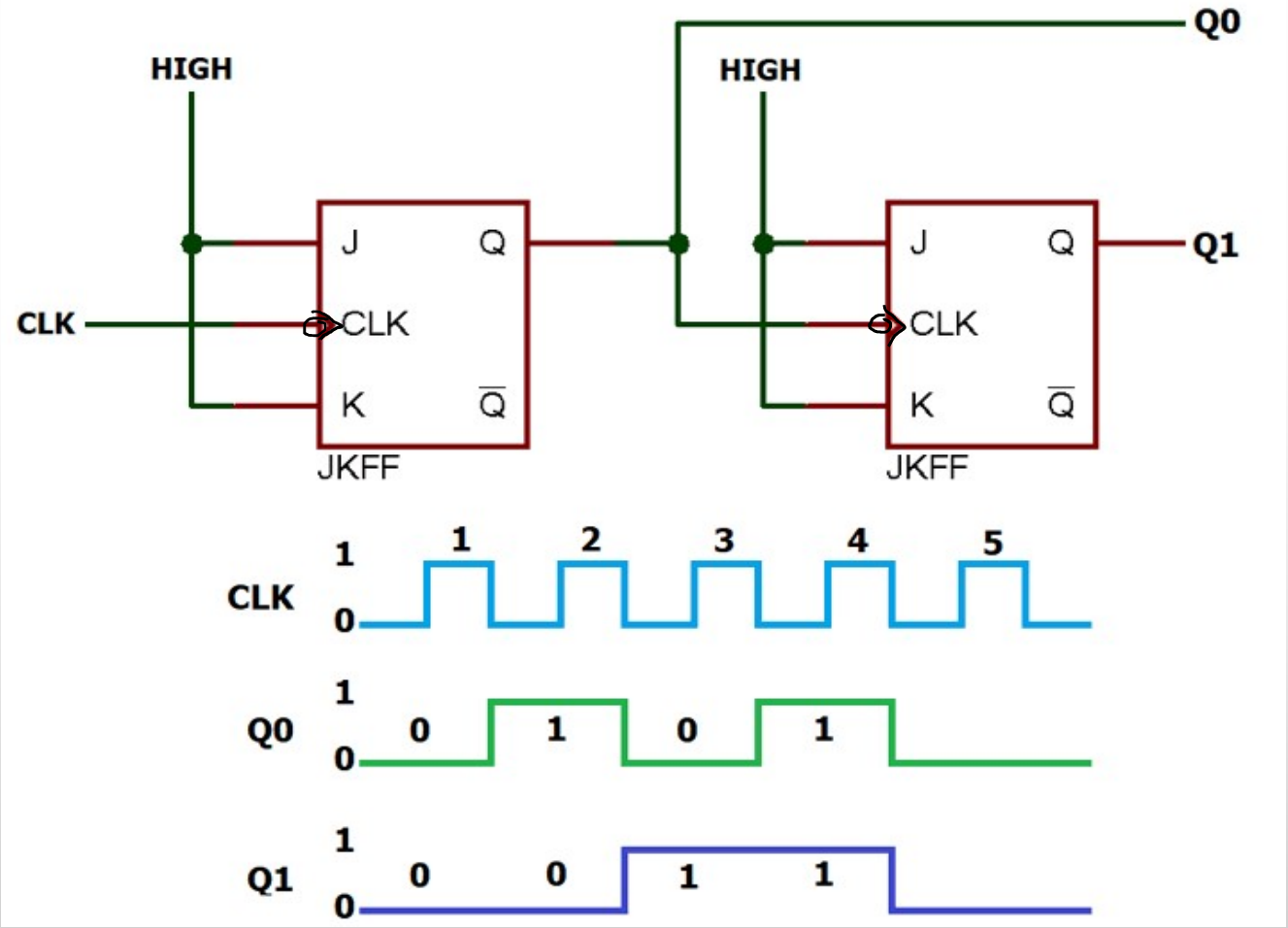
Asynchronous counters (Ripple counters)

Design a 2 – bit (MOD 4/ Divide by 4) asynchronous UP counter using negative edge triggered JK flip flops.

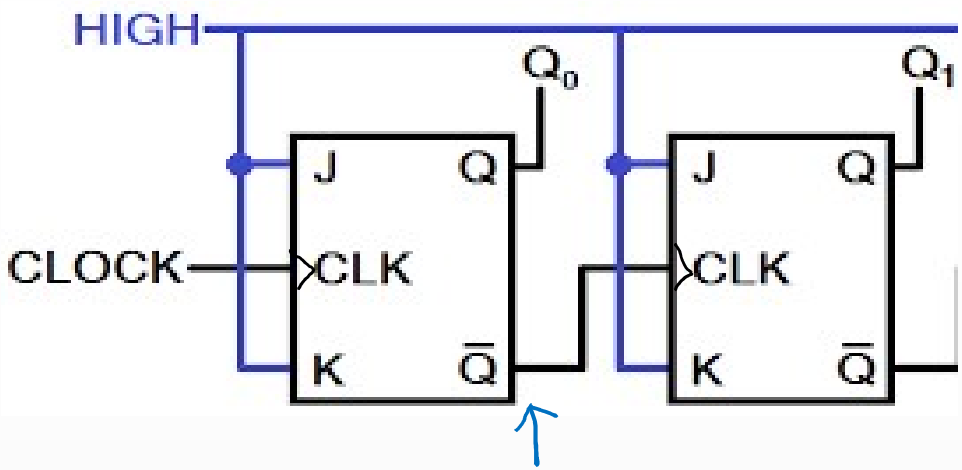


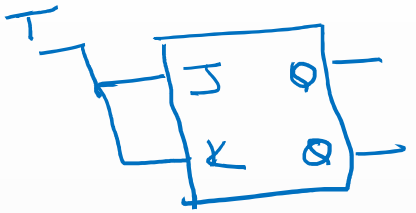
Asynchronous counters (Ripple counters)

- Design a 2 – bit (MOD 4/ Divide by 4) Asynchronous UP counter using negative edge triggered JK flip flops.

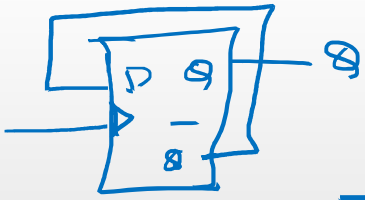


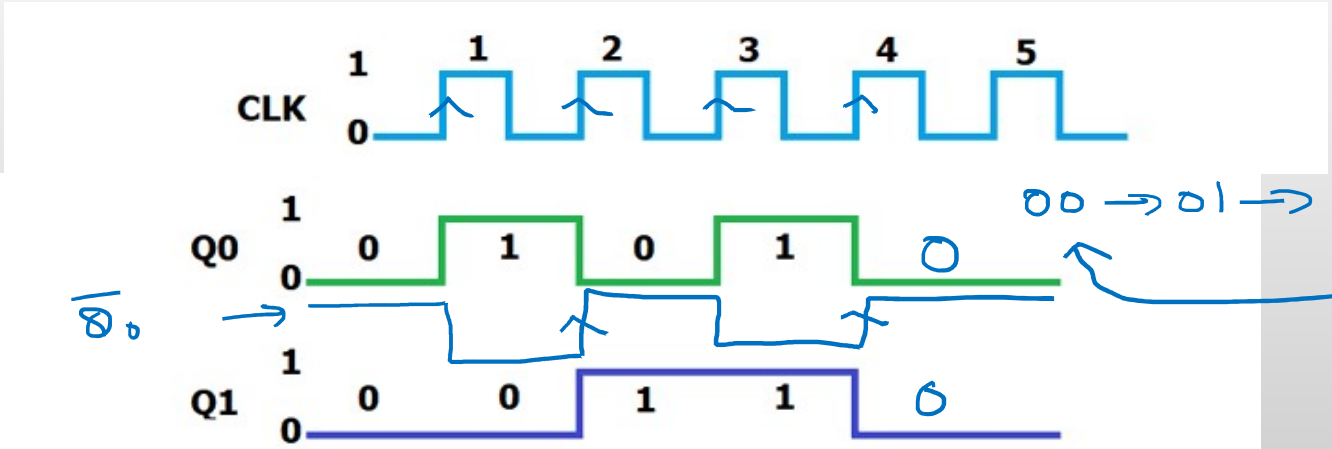
- Design a 2 – bit Asynchronous UP counter using positive edge triggered JK flip flops.





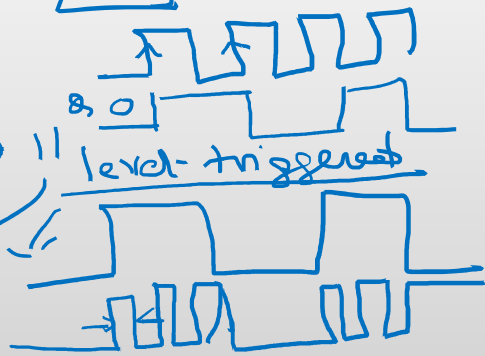
D-ff to T-ff



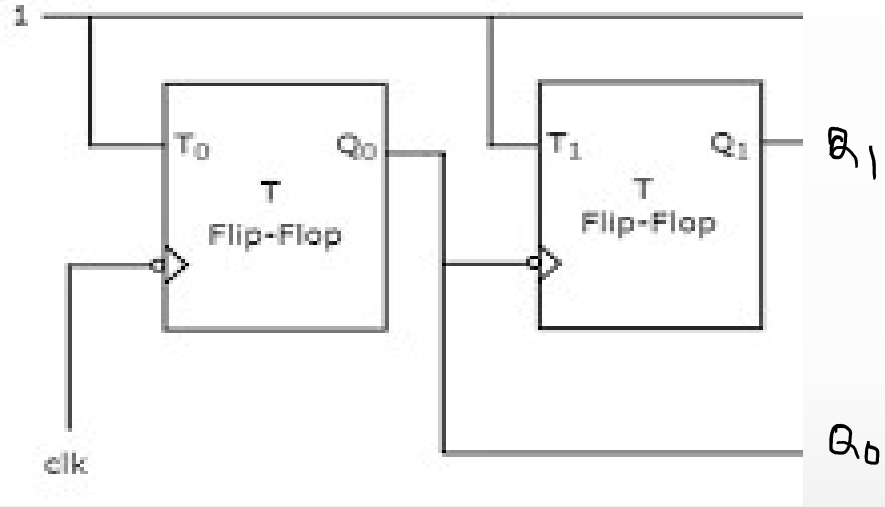


00 → 01 → 10 → 11

level-triggered

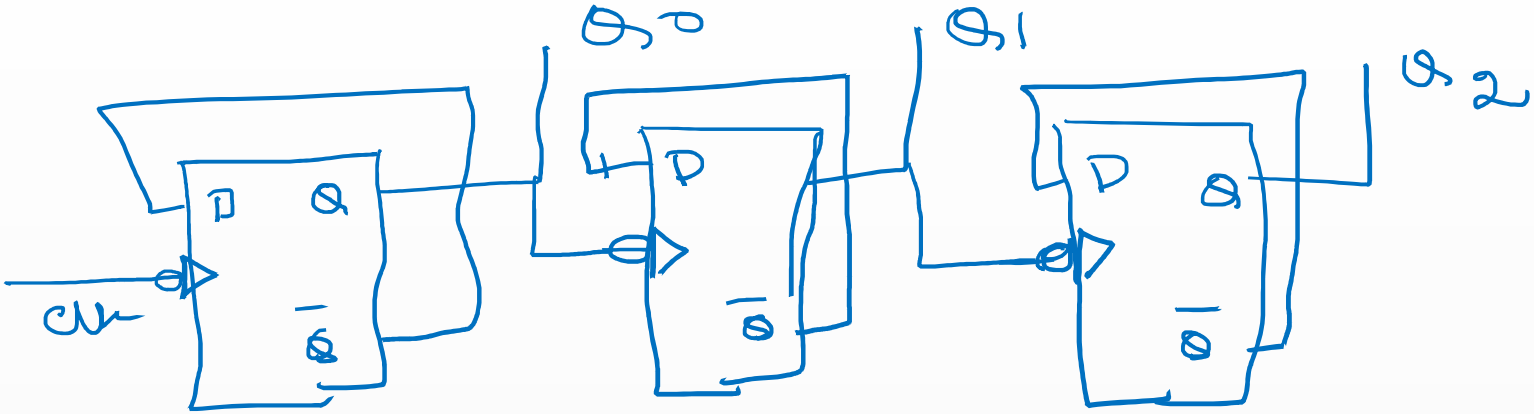


- Design a 2 – bit Asynchronous UP counter using negative edge triggered T flip flops.



- Design a 2 – bit Asynchronous UP counter using positive edge triggered T flip flops.

- Design a 3 – bit (MOD 8/Divide by 8) Asynchronous UP counter using negative edge triggered D flip flops.



- Design a 3 – bit Asynchronous UP counter using positive edge triggered D flip flops.

Draw the circuit in your note book

Quiz 2