VIRTUAL LAB

**Aim:**

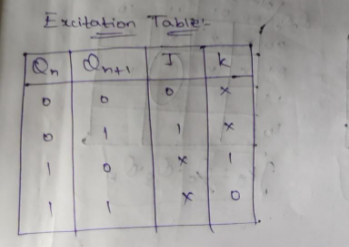
1. Implementation of 4 bit Up Counter using JK Flip flop.
2. Implementation of 4 bit Down Counter using T Flip flop
3. Design and Implementation of MOD 20 Counter using T Flip flop

**Software Used:** Logisim Software.

**Design And Implementation:**

1. **4 bit Up Counter**:

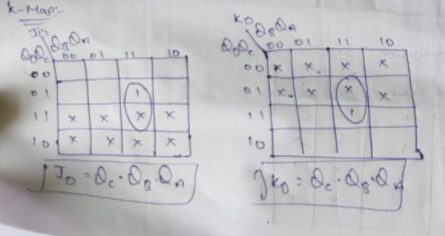
Excitation Table:

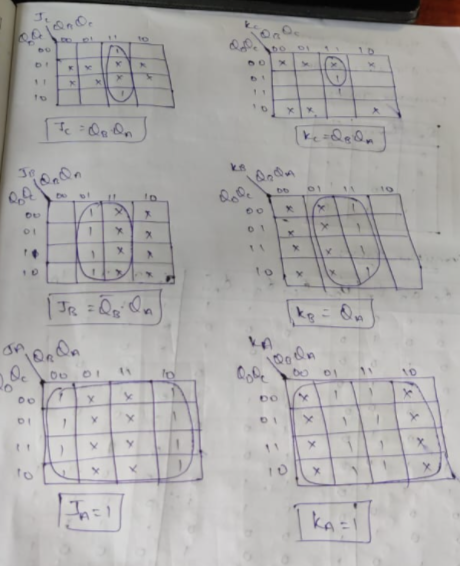


Transition Table:

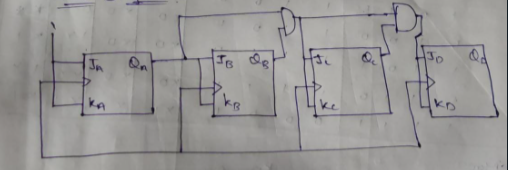


K-Map:





Circuit Diagram:



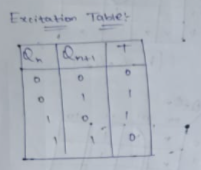
Software Implementation:

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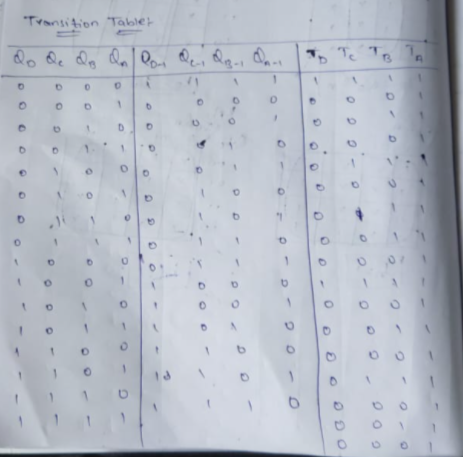

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1. **4 bit Down Counter:**

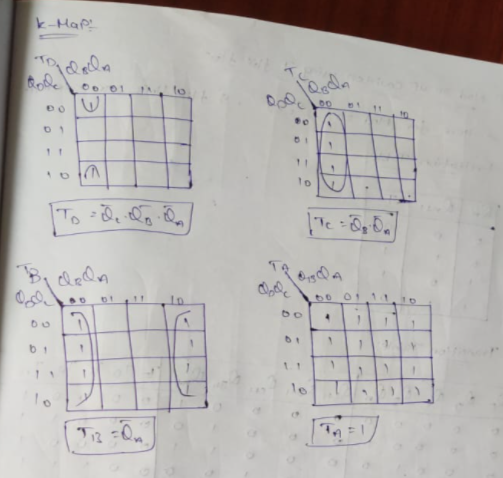
Excitation Table:



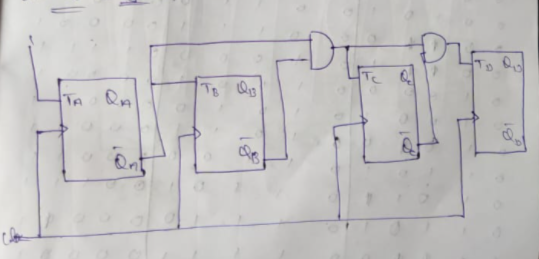
Transition Table:



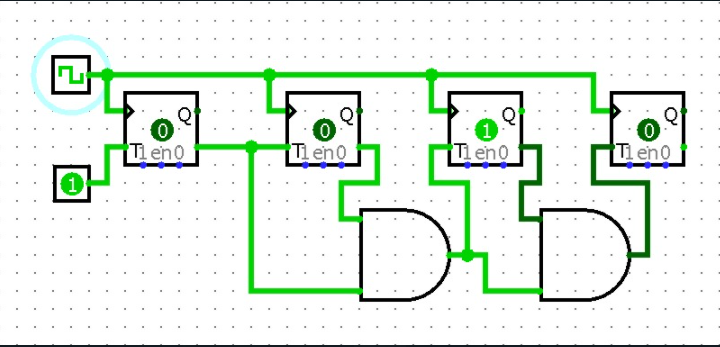
K-Map:



Circuit Diagram:



Software Implementation:



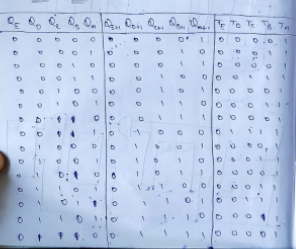
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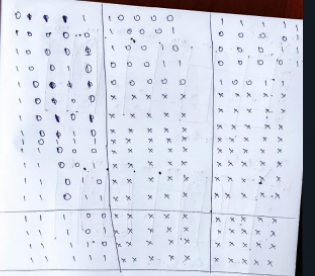
1. Mod 20 UP counter:

Excitation Table:

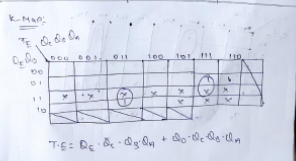


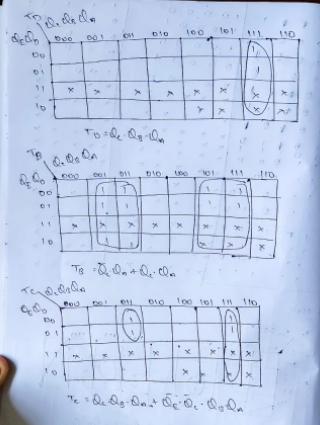
Transition Table:

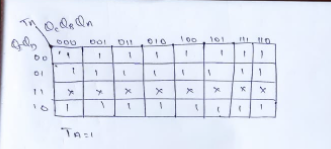




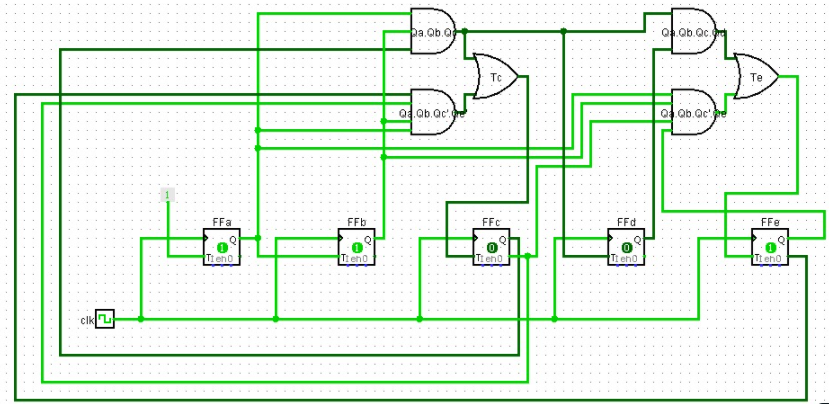
K-Map:







Software Implementation:



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