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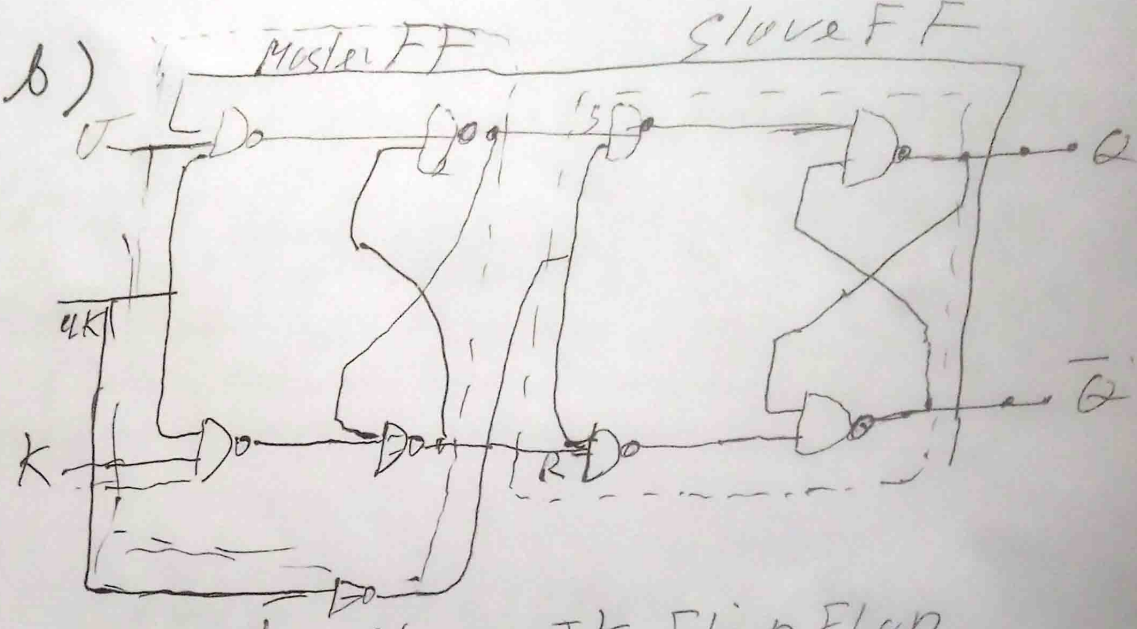
Ans 1) a) Master and slave Flip Flop is a type of clocked flip-flop consisting of master and slave elements that are clocked on complementary transitions of the clock signal such as pulse triggered device.

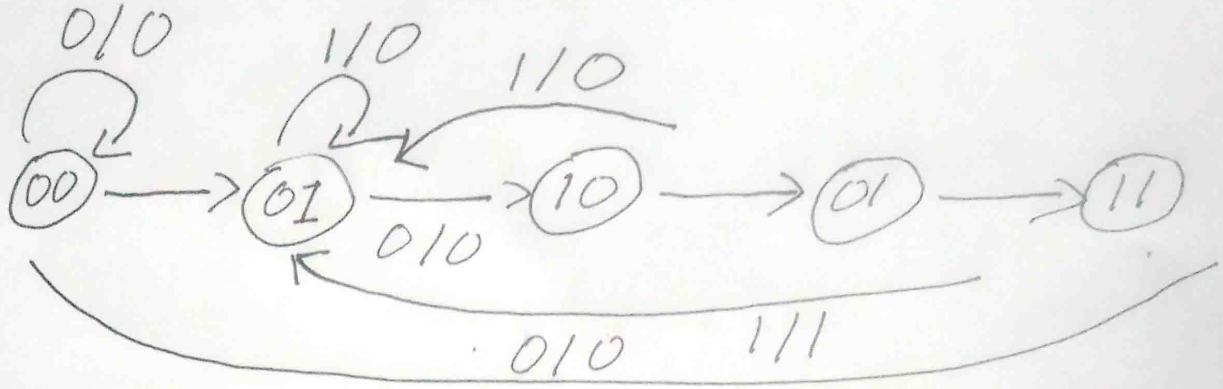
Ans 2) b)



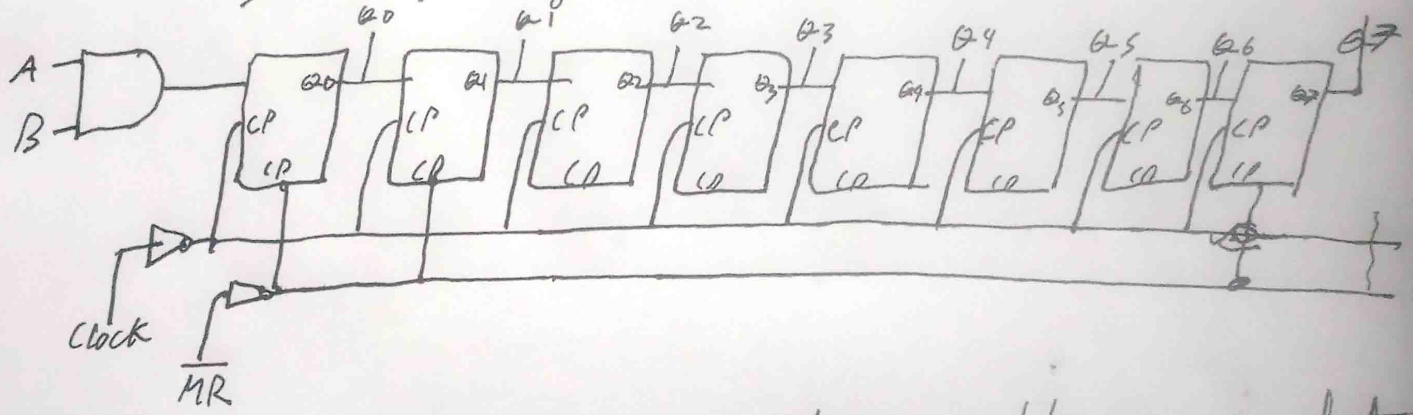
Master slave JK Flip Flop

A master slave flip flop is made by connecting two JK flip flops in a series configuration in which one acts as the master and another as a slave. The master slave configuration is used in a flip flop eliminate the race around condition but not to store two bits of information. Master slave flip flop is also refered as the pulse triggered flip flop.

Ans 2) a) state diagram for figure 2-a



Ans 3) a) Eight bit serial Register



8 bit serial register allows data to be shifted in and out one bit at a time in a serial manner. One clock period is = (1/2) micro-s = 0.5 micros-econds.

Ans 3) b) Seriol transfer of information from register A to register B is done with shift registers, where the serial output from register A serves as the serial input for register B. While operations are usually parallel because it is faster, serial operations require less equipment.

Ans 4) a) State diagram for figure 4.