

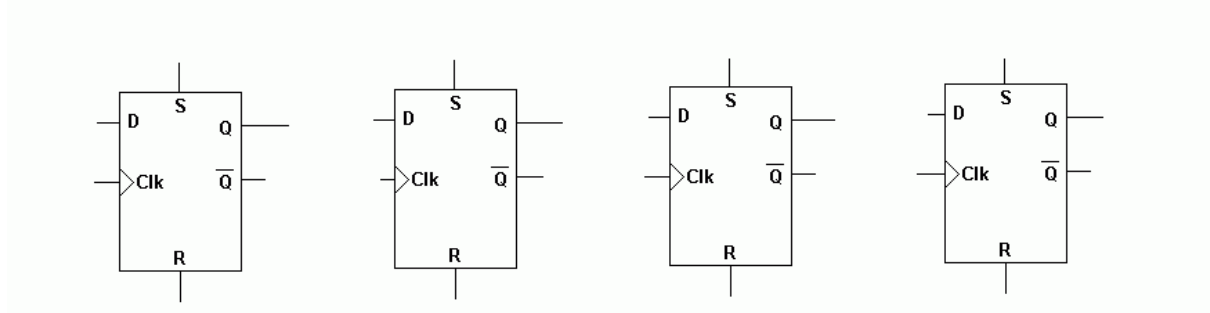
08 D Type Flip Flop Test

Your Name:

1. Add to the flip flops below to make the circuit diagram of a four bit binary up counter.

Add one AND gate and connect this to make a modulo 10 counter.

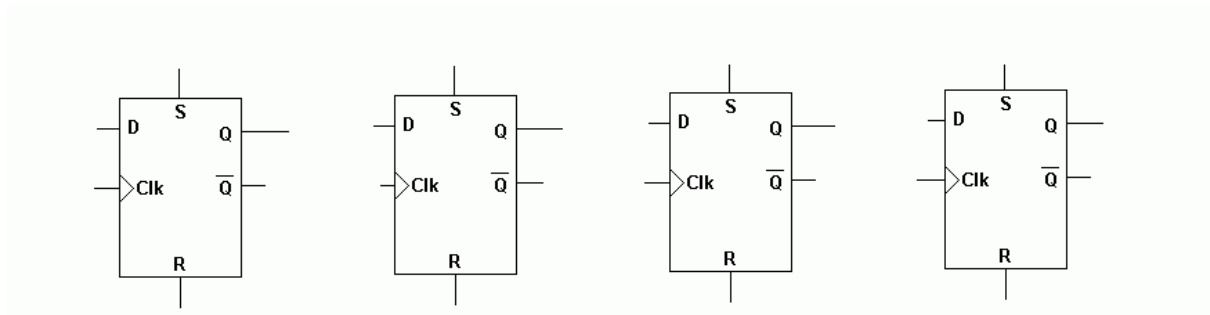
Label the clock input and the four outputs.



[7 Marks]

2. Add to the flip flops below to make the circuit diagram of a four bit shift register.

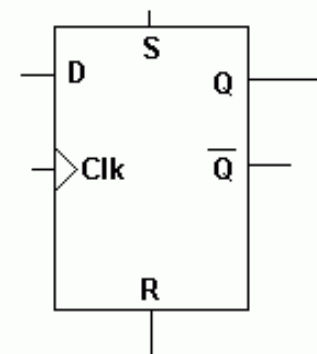
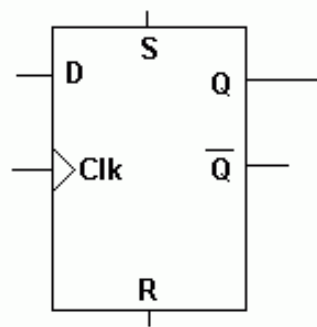
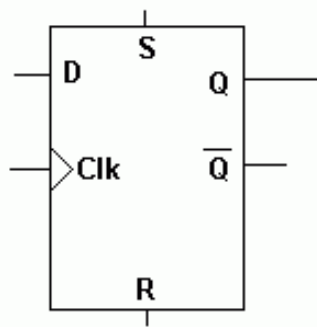
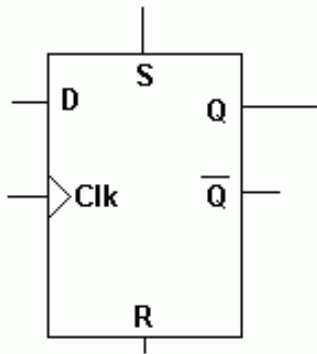
Label the clock input, the serial data input and the four outputs.



[5 Marks]

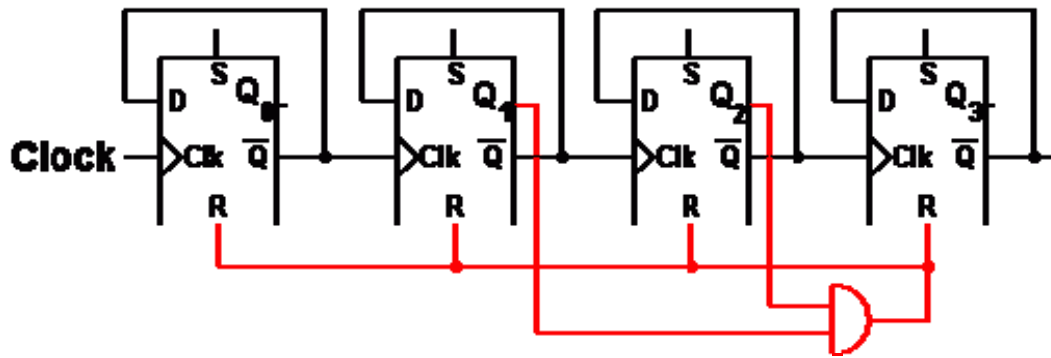
3. Add to the flip flops below to make the circuit diagram of a four bit data latch.

Label the clock input, the parallel data inputs and the four outputs.



[3 Marks]

4. This counter will reset when it reaches _____ ?



[1 Mark]

5. The counter above is a modulo _____ counter. [1 Mark]

6. The highest number output from the counter above is a _____. [1 Mark]

7. Draw the circuit diagram of a subsystem that divides the input frequency by two. Label the input and output. [2 Marks]