

# \* Binary Ripple counters:

Counters whose counting sequence corresponds to that of the binary numbers are called binary counters.

Modulus of binary counter is  $2^n$

$$\therefore m = 2^n$$

where  $n$  is the no. of flip-flops

e.g. a mod-10

$$10 = 2^4 \Rightarrow 4 \text{ FFs}$$

$Q_3$	$Q_2$	$Q_1$	$Q_0$
0	0	0	0
0	0	0	1
0	0	1	0
0	0	1	1
0	1	0	0
0	1	0	1
0	1	1	0
0	1	1	1
1	0	0	0
1	0	0	1
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0	0	0	0
1	0	1	1
1	1	0	0
1	1	0	1
1	1	1	0
1	1	1	1

Q8a

## Four-bit binary ripple counter: (T-FF)

