



ColumnLayout Default



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Ln#
1  module jk_flip_flop_tb;
2
3  // Testbench signals
4  reg J;          // J input for testbench
5  reg K;          // K input for testbench
6  reg clk;        // Clock input for testbench
7  wire Q;         // Q output for testbench
8  wire Q_bar;     // Q_bar output for testbench
9
10 // Instantiate the JK Flip-Flop without reset
11 jk_flip_flop uut (
12     .J(J),
13     .K(K),
14     .clk(clk),
15     .Q(Q),
16     .Q_bar(Q_bar)
17 );
18
19 // Clock generation
20 initial begin
21     clk = 0;
22     forever #5 clk = ~clk; // Clock period = 10 time units
23 end
24
25 // Test sequence
26 initial begin
27     $monitor("At time %t: J = %b, K = %b, clk = %b, Q = %b, Q_bar = %b", $time, J, K, clk, Q, Q_bar);
28     // Initialize inputs
29     #10 J = 0; K = 0; // Test case 1: J = 0, K = 0 (No change)
30     #10 J = 0; K = 1; // Test case 2: J = 0, K = 1 (Reset Q)
31     #10 J = 1; K = 0; // Test case 3: J = 1, K = 0 (Set Q)
32     #10 J = 1; K = 1; // Test case 4: J = 1, K = 1 (Toggle Q)
33     #10 $finish;
34 end
35
36 endmodule
37

```



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Wave - Default

