



DAY-77

#100DAYSOFRTL

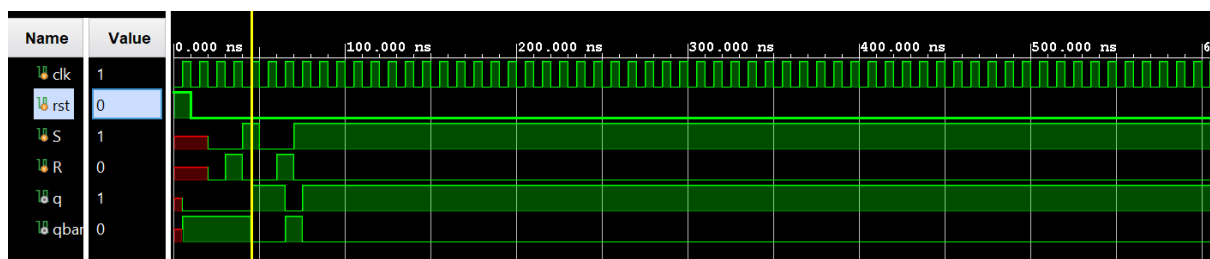
Aim:- Implementation of JK FLIPFLOP TO SR FLIPFLOP.

RTL CODE:-

```
///DATE:-17/03/2024
///DAY-77
///Implementation of JK FF TO SR FF
module Day_77(input clk,rst,S,R, output q,qbar);
  Jkff JKFF (clk,rst,S,R,q,qbar);
endmodule

module Jkff(input clk,rst,J,K,
output reg q, qbar);
  always@(posedge clk) begin
  if(rst) begin
    q<=0;
    qbar<=1;
  end
  else begin
    case({J,K})
    'b00: {q,qbar}<={q,qbar};
    'b01: {q,qbar}<={1'b0,1'b1};
    'b10: {q,qbar}<={2'b10};
    'b11: {q,qbar}<={qbar,q};
    default: begin end
    endcase
  end
end
endmodule
```

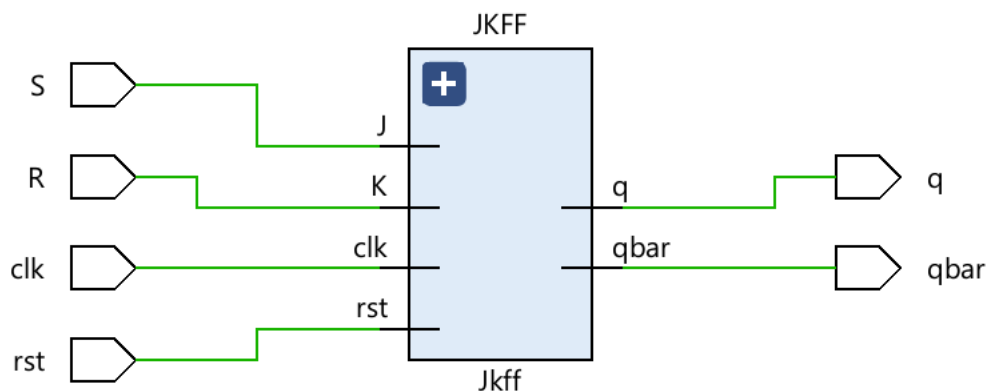
WAVEFORMS:-



TESTBENCH:-

```
module Day_77_tb();
    reg clk,rst,S,R;
    wire q,qbar;
    Day_77 uut(clk,rst,S,R,q,qbar);
    ○ always #5 clk=~clk;
    ○ initial clk=0;
    initial begin
    ○ rst=1; #10;
    ○ rst=0;
    ○ #10;
    ○ S=0; R=0; #10;
    ○ $display("S=%d,R=%d,q=%d,qbar=%d",S,R,q,qbar);
    ○ S=0; R=1; #10;
    ○ $display("S=%d,R=%d,q=%d,qbar=%d",S,R,q,qbar);
    ○ S=1; R=0; #10;
    ○ $display("S=%d,R=%d,q=%d,qbar=%d",S,R,q,qbar);
    ○ S=0; R=0; #10;
    ○ $display("S=%d,R=%d,q=%d,qbar=%d",S,R,q,qbar);
    ○ S=0; R=1; #10;
    ○ $display("S=%d,R=%d,q=%d,qbar=%d",S,R,q,qbar);
    ○ S=1; R=0; #10;
    ○ $display("S=%d,R=%d,q=%d,qbar=%d",S,R,q,qbar);
    end
endmodule
```

SCHEMATIC:-



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