



DAY-86

#100DAYSOFRTL

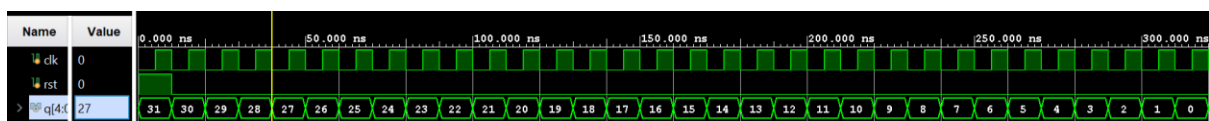
Aim:- Implementation of Asynchronous 5-bit Ripple Down Counter using T Flip-Flop.

RTL CODE:-

```
//////DATE:-26/03/2024
//////DAY-86
//////Implementation of Asynchronous 5-bit Ripple Down Counter
module Day_86_Design(input clk,rst, output [4:0] qbar);
wire [4:0] q;
TfF T1(clk,rst,1'b1,q[0]);
TfF T2(q[0],rst,1'b1,q[1]);
TfF T3(q[1],rst,1'b1,q[2]);
TfF T4(q[2],rst,1'b1,q[3]);
TfF T5(q[3],rst,1'b1,q[4]);
○ assign qbar[4:0]=(~q[4:0]);
endmodule

module TfF(input clk,rst,T, output reg q);
○ always@(negedge clk) begin
○ if(rst)
○ q<=0;
○ else begin
○ case (T)
○ 1'b0:q=q;
○ 1'b1:q=~q;
○ endcase
○ end
○ end
endmodule
```

WAVEFORMS:-



TESTBENCH:-

```

module Day_86_tb();
  reg clk,rst;
  wire [4:0] q;
  Day_86_Design uut(clk,rst,q);
  ○ always #5 clk=~clk;
  ○ initial clk=0;
  initial begin
  ○ rst=1; #10;
  ○ rst=0;
  end
endmodule

```

SCHEMATIC:-

