

Practice Quiz 10

The following Verilog program applies to the questions on this quiz. Complete the PS-NS table and state transition diagram to determine the answers.

```

module myseq(CLK, Q);
  input wire CLK;
  output reg [2:0] Q;

  reg [2:0] next_Q;

  always @ (posedge CLK) begin
    Q <= next_Q;
  end

  always @ (Q) begin
    next_Q[2] = Q[1];
    next_Q[1] = Q[0];
    next_Q[0] = ~(Q[1] | Q[0]);
  end
endmodule
    
```

Q2	Q1	Q0	Q2*	Q1*	Q0*
0	0	0	0	0	1
0	0	1	0	1	0
0	1	0	1	0	0
0	1	1	1	1	0
1	0	0	0	0	1
1	0	1	0	1	0
1	1	0	1	0	0
1	1	1	1	1	0

- The number of states in the **periodic sequence** is:
 (A) 1 (B) 3 (C) 6 (D) 8 (E) none of these
- Another name sometime used for the periodic sequence realized here is:
 (A) one hot (B) two hot (C) switchtail (D) twisted ring (E) none of the above
- The **maximum** number of clock cycles needed for **self-correction** is:
 (A) 0 (B) 1 (C) 2 (D) 3 (E) none of these
- The number of **state variables** needed to **uniquely decode** each of the states in the periodic sequence is:
 (A) 0 (B) 1 (C) 2 (D) 3 (E) none of these
- The "mystery sequencer" is a:
 (A) binary UP counter (B) Gray code counter (C) Johnson counter (D) ring counter (E) none of the above

