

Key

Name: \_\_\_\_\_  
ID (last 4): \_\_\_\_\_

1. [20] For the statemachine below:

a) [2] Is it a Mealy or Moore state machine? Moore

b) [2] How many states does it have? 2

c) [2] What output(s) is formed from the present state? 1'b1, 1'b0

d) [4] The present state vector is how wide, assuming binary encoding? 1 bit

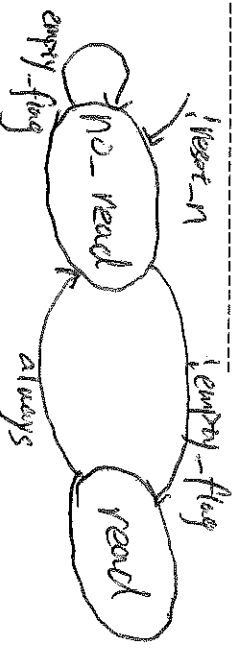
e) [4] Does it have a synchronous or asynchronous reset? asynchronous

f) [6] Draw the state diagram for the state machine below the code.

```

//-----
always_ff @(posedge clk, negedge reset_n)
  if (!reset_n) fifo_rd_ps <= no_read;
  else fifo_rd_ps <= fifo_rd_ns;
always_comb begin
  fifo_rd_ns = fifo_rd_x; //default assignment
  case (fifo_rd_ps)
    no_read :
      if (!empty_flag) fifo_rd_ns = read;
      else fifo_rd_ns = no_read;
  read :
      fifo_rd_ns = no_read;
  endcase
end//always_comb
assign read_fifo = (fifo_rd_ps == read) ? 1'b1 : 1'b0;
//-----

```



2. [10] Draw the circuit corresponding to the code below:

```

always_ff @(posedge clk)
  if (!reset_n) bob <= '0;
  else
    if (en) bob <= d_in;

```

