1) Textbook Problems

Do problems 3.34, 3.35, 4.2, and 4.18.

2) Blocking and nonblocking assignments

The lecture described a bad synchronizer built using blocking assignments that implies one flip-flop instead of two.

```vhdl
// Bad synchronizer using
// blocking assignments
module syncbad(input  logic clk,
               input  logic d,
               output logic q);
logic n1;

always_ff @(posedge clk)
begin
  n1 = d;  // blocking
  q  = n1; // blocking
end
endmodule
```

(a) Show a different way of writing the always statement that still uses blocking assignments but implies a correct synchronizer.

(b) Describe a simple sequential circuit that cannot be correctly described with blocking assignments no matter how you write them.
3) **Time**

Please indicate how many hours you spent on this problem set. This will not affect your grade, but will be helpful for calibrating the workload for next semester’s class.