1. Given below is a "Mystery" Verilog program. Answer the following questions:

A) What function does this Verilog code perform?

```
//Mystery2.v
module what(s, a, b, c, d, e);
input [3:0] a;
input [3:0] b;
input c, e;
output [3:0] s;
output d;
assign {d, s} = a + b + c;
endmodule
```

B) What is the purpose of the variable \(c\)?

C) What is the purpose of the variable \(d\)?

2. What function does the following circuit perform?

```
module when(a, b, c, d, e);
    input [3:0] a, b;
    output c, d, e;
    assign c = a < b;
    assign d = a > b;
    assign e = a == b;
endmodule;
```

3. Write the Verilog code for the following circuit.