module p3(f, g, h, a, b, c);

output f, g, h;

input a, b, c;

not not1 (inv\_a,a);

not not2 (inv\_b, b);

not not3 (inv\_c, c);

and f\_and1 (f\_out1, a, inv\_b);

and f\_and2 (f\_out2, inv\_b, inv\_c);

and f\_and3 (f\_out3, a, c);

or f\_out (f, f\_out1, f\_out2, f\_out3);

or g\_or1 (g\_out1, inv\_b, c);

or g\_or2 (g\_out2, a, b, inv\_c);

and g\_and (g, g\_out1, g\_out2);

and h\_and1 (h\_out1, inv\_b, inv\_c);

and h\_and2 (h\_out2, b, c);

and h\_and3 (h\_out3, a, c);

or h\_out (h, h\_out1, h\_out2, h\_out3);

endmodule

module tb\_p3();

reg a, b, c;

wire f, g, h;

p3 UUT (f, g, h, a, b, c);

initial

begin

a = 1'b0;

b = 1'b0;

c = 1'b0;

#10;

a = 1'b0;

b = 1'b0;

c = 1'b1;

#10;

a = 1'b0;

b = 1'b1;

c = 1'b0;

#10;

a = 1'b0;

b = 1'b1;

c = 1'b1;

#10;

a = 1'b1;

b = 1'b0;

c = 1'b0;

#10;

a = 1'b1;

b = 1'b0;

c = 1'b1;

#10;

a = 1'b1;

b = 1'b1;

c = 1'b0;

#10;

a = 1'b1;

b = 1'b1;

c = 1'b1;

#10;

end

initial

begin

$monitor("a = %b, b = %b, c = %b, f = %b, g = %b, h = %b, time = %t\n\n", a, b, c, f, g, h, $time);

end

endmodule

