```
/* full subtractor module */

module fullSub(output reg D,Bout,input X,Y,Bin);
always @ (X or Y or Bin) begin
        if(( X == 1'b0 & Y ==1'b0 & Bin == 1'b0)|
        ( X==1'b0 & Y ==1'b1 & Bin == 1'b1)|
        (X == 1'b1 & Y == 1'b0 & Bin == 1'b1)|
        (X == 1'b1 & Y == 1'b1 & Bin == 1'b0))
        begin
                D=1'b0;
        end
        else
                D=1'b1;
        if((X == 1'b0 & Y == 1'b0 & Bin == 1'b0)|
        (X == 1'b1 & Y == 1'b0 & Bin == 1'b0)|
        (X == 1'b1 & Y == 1'b0 & Bin == 1'b1)|
        (X == 1'b1 & Y == 1'b1 & Bin == 1'b0))
        begin
                Bout=1'b0;
        end
        else
                Bout=1'b1;
        end
endmodule

/* testbench module */

module FS_tb;
        reg x,y,bin;
        wire d,bout;
        fullSub fs(d,bout,x,y,bin);
        initial begin
                x=0; y=0; bin=0;
                #1 x = 0; y = 0; bin = 1;
                #1 x = 0; y = 1; bin = 0;
                #1 x = 0; y = 1; bin = 1;
                #1 x = 1; y = 0; bin = 0;
                #1 x = 1; y = 0; bin = 1;
                #1 x = 1; y = 1; bin = 0;
                #1 x = 1; y = 1; bin = 1;
        end
        initial begin
                $monitor("%t | A = %d | B = %d | Borrow In = %d | Difference = %d |
Borrow Out = %d",$time,x,y,bin,d,bout);
        end
endmodule
```