

### **Module file:**

```
module fulladder(A,B,C,Su,Ca);  
input A,B,C;  
output Su,Ca;  
assign Su=A^B^C;  
assign Ca=(A&B) || (B&C) || (C&A);  
endmodule
```

### **Test Bench:**

```
module main;  
reg A,B,C;  
wire Su,Ca;  
fulladder ad(A,B,C,Su,Ca);  
initial begin  
#10 A=0;B=0;C=0;  
#10 A=0;B=0;C=1;  
#10 A=0;B=1;C=0;  
#10 A=0;B=1;C=1;  
#10 A=1;B=0;C=0;  
#10 A=1;B=0;C=1;  
#10 A=1;B=1;C=0;  
#10 A=1;B=1;C=1;  
end  
initial begin  
$monitor("time=%d,A=%b,B=%b,C=%b,Sum=%b,Carry=%b\n", $time,A,B,C,Su,Ca);  
end  
endmodule
```

### **Output:**

```
time=          0,A=x,B=x,C=x,Sum=x,Carry=x  
  
time=          10,A=0,B=0,C=0,Sum=0,Carry=0  
  
time=          20,A=0,B=0,C=1,Sum=1,Carry=0  
  
time=          30,A=0,B=1,C=0,Sum=1,Carry=0  
  
time=          40,A=0,B=1,C=1,Sum=0,Carry=1  
  
time=          50,A=1,B=0,C=0,Sum=1,Carry=0  
  
time=          60,A=1,B=0,C=1,Sum=0,Carry=1  
  
time=          70,A=1,B=1,C=0,Sum=0,Carry=1  
  
time=          80,A=1,B=1,C=1,Sum=1,Carry=1
```