Pre-lab Report-3

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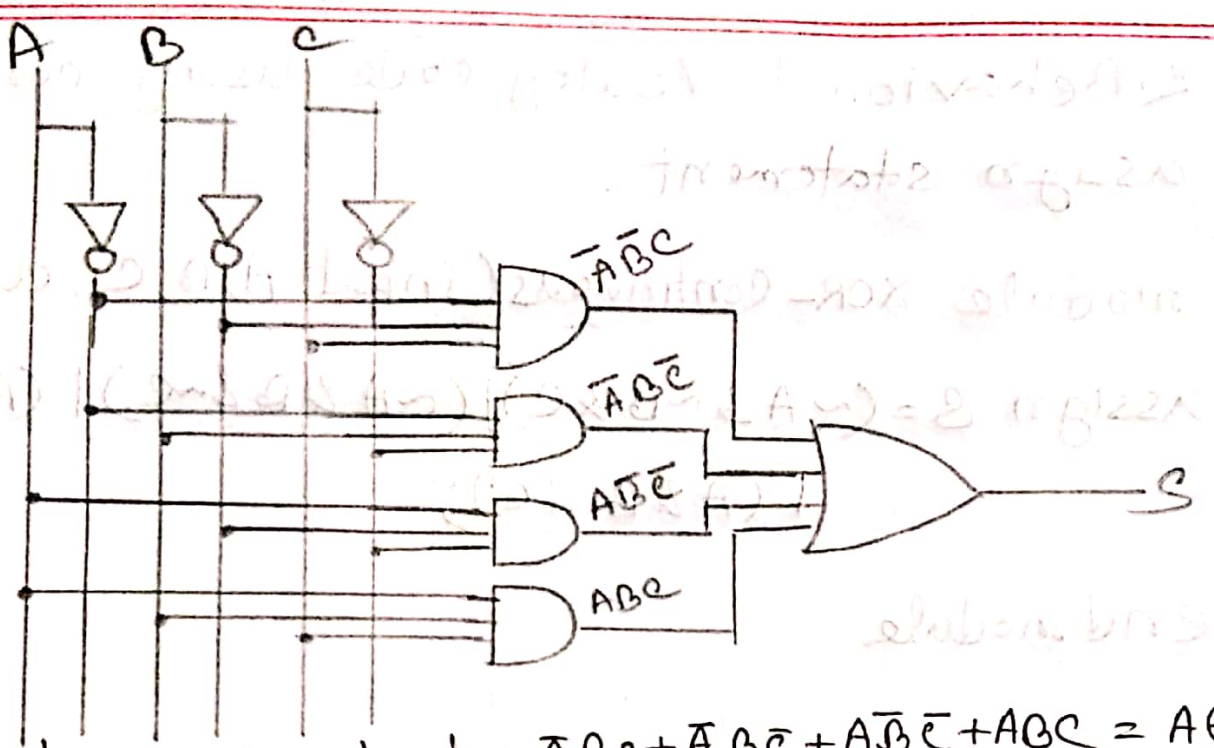

Boolean expression is : $\bar{A}BC+\bar{A}B\bar{C}+A\bar{B}\bar{C}+ABC = A \oplus B \oplus C$

Combinational circuit for 3input X-OR gate

1. Behavinol Code using procedural model.

```
module XOR_Procedural(input A,B,C, output reg S);
always @(A,B,C)
  begin S=0;
    if(~A&~B&C) S=1;
    if(~A&B&~C) S=1;
    if(A&~B&~C) S=1;
    if(A&B&C) S=1;
  end
endmodule
```

2. Behavioral Verilog code using continuous assign statement.

```
module XOR_continuous(input A,B,C, output s);
assign S=(~A&~B&C)|(~A&B&~C)|(A&~B&~C)
        |(A&B&C);
endmodule
```

Truth Table: Truth table for the given circuit as follows:

A	B	C	S
0	0	0	0
0	0	1	1
0	1	0	1
0	1	1	D
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	1