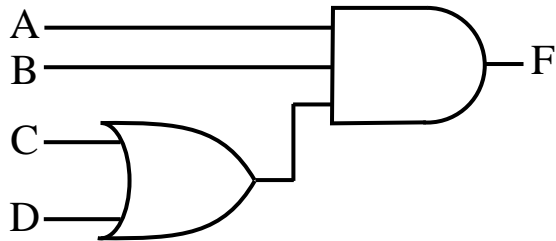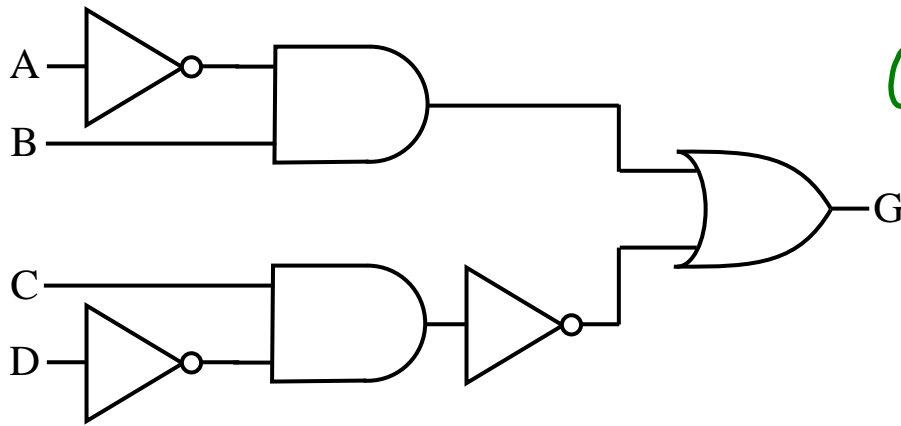For each of the following logic circuits find the Boolean expression for F. (Please do not reduce the expressions – leave them in the un-simplified form obtained directly from the logic circuits.)
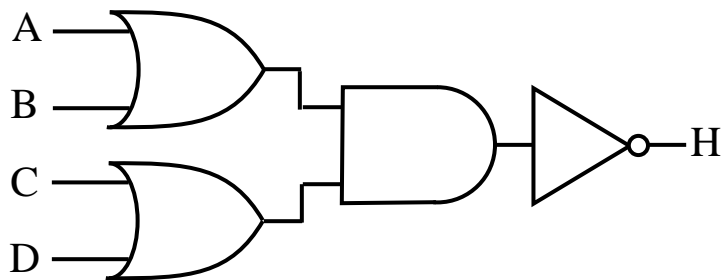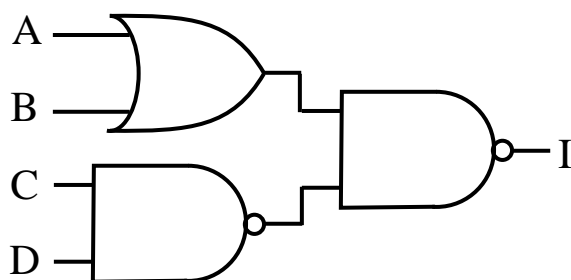
a)

A
B
C
D
F

$$F = A + B + CD$$

b)

A
B
C
D
G

$$G = (A' + B)(C + D')'$$

c)

A
B
C
D
H

$$H = (AB + CD)'$$

d)

A
B
C
D
I

$$I = (AB + (C+D)')'$$