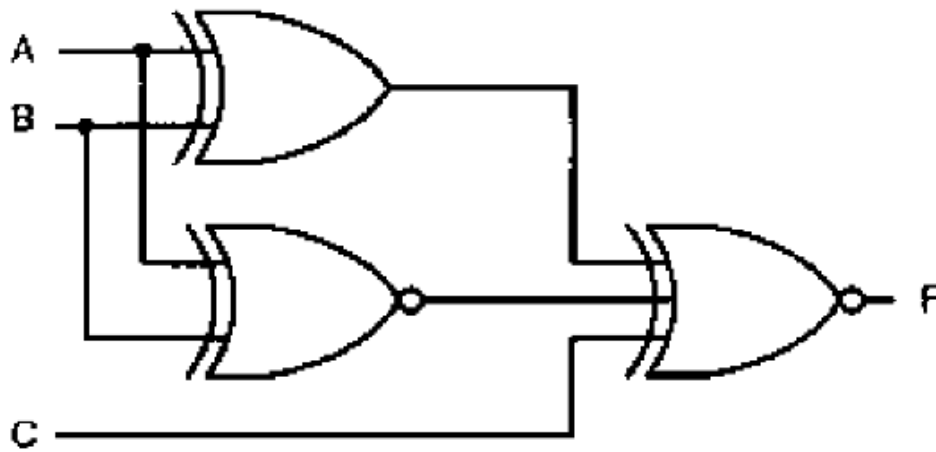


GATE ECE - Question 6: Logic Circuit Problem

Question

GATE ECE - Question 6: For the output F to be 1 in the logic circuit shown, the input combination should be:



Options:

(A) $A = 1, B = 1, C = 0$

(B) $A = 1, B = 0, C = 0$

(C) $A = 0, B = 1, C = 0$

(D) $A = 0, B = 0, C = 1$

Answer

The logic circuit implements the following Boolean equation:

$$F = (A \cdot B) + \overline{(A + B)} + C$$

Now let's test Option (A): $A = 1, B = 1, C = 0$

$$F = (1 \cdot 1) + \overline{(1 + 1)} + 0 = 1 + 0 + 0 = 1$$

Therefore, the correct answer is: Option (A).