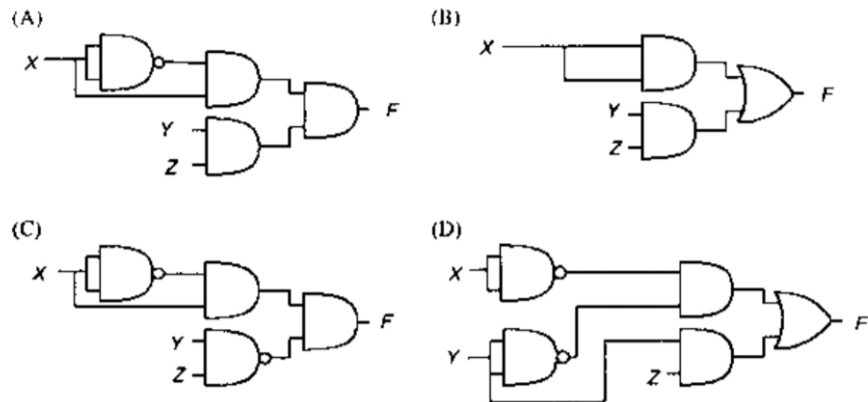


GATE
EE2010

1. Q) Which of the following circuits is a realization of the function.

$$F = \overline{XY} + YZ$$



Answer: (A)circuit Analysis

- (a) The first NAND gate takes inputs X as x' and another AND gate takes x,x' and gives as \bar{x} .
- (b) The second AND gate takes inputs y,z = yz.
- (c) The output F is obtained by AND-ing the outputs of both AND gates.
- (d) Boolean Expression for (A):

$$F = \bar{x}yz$$

(B)circuit Analysis

- (a) The first AND gate takes inputs X as x .
- (b) The second AND gate takes inputs y,z = yz.
- (c) The output F is obtained by OR-ing the outputs of both AND gates.

Boolean Expression for (A): $F = X + YZ$

(C)circuit Analysis

- (a) The first NAND gate takes inputs X as x' and another AND gate takes x,x' and gives as \bar{x} .
- (b) The second NAND gate takes inputs y,z = $\bar{y}\bar{z}$.
- (c) The output F is obtained by AND-ing the outputs of both AND gates.
- (d) Boolean Expression for (A):

$$F = \bar{x}yz$$

(D)circuit Analysis

- (a) The first NAND gate takes input X as x' and another NAND gate takes input y as y' and both inputs are given to NAND gate and gives \overline{xy} .
- (b) The y input and z input is taken by AND gate and gives yz.
- (c) The output F is obtained by OR-ing the outputs of both AND gates.

Boolean Expression for (A):

$$F = \overline{xy} + yz$$

Therefore option D is correct.