

GATE EE 2010 PAPER

The following karnaugh map represents a function F 52. A minimized form of the function F is

		00	01	11	10
F					
X	0	1	1	1	0
	1	0	0	1	0

(A) $F = XY + YZ$

(B) $F = XY + YZ$

(C) $F = XY + YZ$

(D) $F = XYZ$

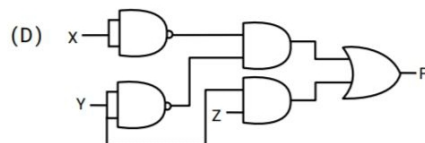
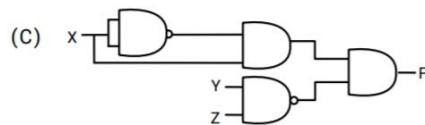
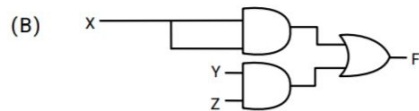
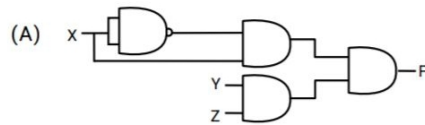
Solution: The minterms where $F = 1$ are:

$$m_0 = \overline{X}\overline{Y}\overline{Z}, \quad m_1 = \overline{X}\overline{Y}Z, \quad m_3 = \overline{X}YZ, \quad m_7 = XYZ$$

Simplifying, we get:

$$F = \overline{X}\overline{Y} + YZ$$

53. Which of the following circuits is a realization of the above function F



Solution: We know that the function $F = \overline{X}\overline{Y} + YZ$
Based on the function F the realized circuit is

