EC 27

EE23BTECH11048-Ponugumati Venkata Chanakya*

QUESTION: Select the Boolean function(s) equivalent to $x+yz$, where x, y, and z are Boolean variables, and + denotes logical OR operation.

1) $x + z + xy$
2) $(x + y)(x + z)$
3) $x + xy + yz$
4) $x + xz + xy$

GATE 2022

Solution: The truth table of followin boolean functions is:

x	y	z	$x + yz$	$x + z + xy$	$(x + y)(x + z)$	$x + xy + yz$	$x + xz + xy$
0	0	0	0	0	0	0	0
0	0	1	0	1	0	0	0
0	1	0	0	0	0	0	0
0	1	1	1	1	1	1	0
1	0	0	1	1	1	1	1
1	0	1	1	1	1	1	1
1	1	0	1	1	1	1	1
1	1	1	1	1	1	1	1

$\implies$ 2, 3 are correct options