Date

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Sec. 2D.

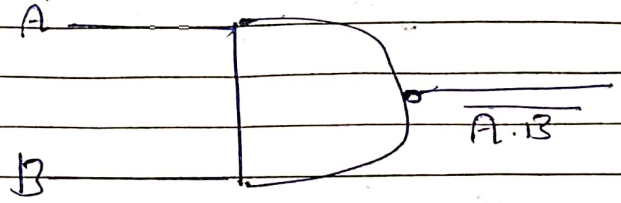
"DLD"

Q#02

NAND and NOR are commutative and not associative

NAND

NAND



$A \uparrow B = B \uparrow A$

$(A \uparrow B) \uparrow C \neq A \uparrow (B \uparrow C)$

L.H.S $(A \uparrow B) \uparrow C$

$\overline{A \cdot B} + C$

$= \overline{A \cdot B} + \overline{C}$

$= AB + \overline{C}$

R.H.S $A \uparrow (B \uparrow C)$

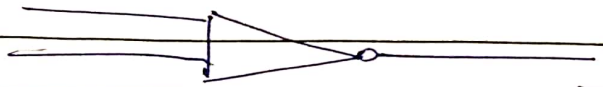
$A \cdot \overline{(B \cdot C)}$

$\overline{A} + \overline{B \cdot C}$

$= \overline{A} \cdot BC$

L.H.S $\neq$ R.H.S

NOR = NOR + OR



$A + B = \overline{A + B}$

$(A \downarrow B) \downarrow C \neq A \downarrow (B \downarrow C)$

L.H.S

$\overline{A + B} + C$

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

$(A+B).\bar{C}$

R.H.S

$A+(\bar{B}+C)$

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

$=\bar{A}.(B+C)$

L.H.S ≠ R.H.S

$Z_1 = A.B.C$

C	B	A	Z_1
0	0	0	1
0	0	1	1
0	1	0	1
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	0

$Z_2 = (A\cdot B).C$

C	B	A	Z_2
0	0	0	1
0	0	1	1
0	1	0	1
0	1	1	1
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	1