PHYSICS: SOLID AND SEMICONDUCTOR

DPP No. : 2

1. The truth table shown in figure is for

A	0	0	1	1
B	0	1	0	1
Y	1	0	0	1

(1) XOR   (2) AND   (3) XNOR   (4) OR

2. For the given combination of gates, if the logic states of inputs A, B, C are as follows A = B = C = 0 and A = B = 1, C = 0 then the logic states of output D are
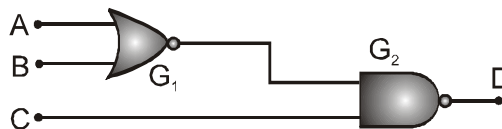
(1) 0, 0   (2) 0, 1   (3) 1, 0   (4) 1, 1

3. Boolean algebra is essentially based on

(1) Truth   (2) Logic   (3) Symbol   (4) Numbers

4. Which of the following gates will have an output of 1


5. The Boolean equation of NOR gate is

(1) $C = A + B$ (2) $C = \overline{A + B}$ (3) $C = A \cdot B$ (4) $C = \overline{A \cdot B}$

6. The output of a NAND gate is 0

(1) If both inputs are 0

(2) If one input is 0 and the other input is 1

(3) If both inputs are 1

(4) Either if both inputs are 1 or if one of the inputs is 1 and the other 0

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7. The given figure shows the wave forms for two inputs A and B and that for the output Y of a logic circuit. The logic circuit is

(A)

O   T   T   T   T   t

(B)

O   T T_2 T_3 T   t

(Y)

O T_1 T_2 T_3 T_4 t
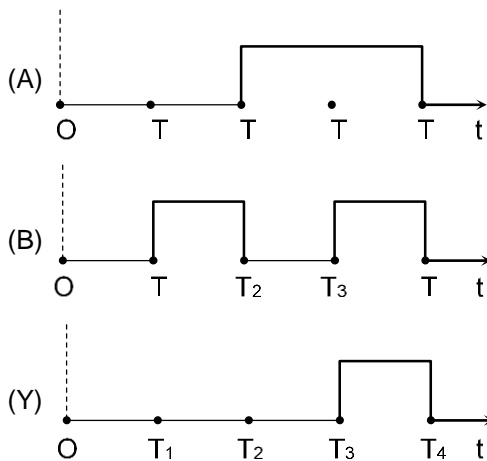
(1) An AND gate   (2) An OR gate   (3) A NAND gate   (4) An NOT gate

8. Given below are four logic gate symbol (figure). Those for OR, NOR and NAND are respectively

(1) A B → y   (2) A B → y   (3) A B → y   (4) A B → y

(1) 1, 4, 3   (2) 4, 1, 2   (3) 1, 3, 4   (4) 4, 2, 1

9. A truth table is given below. Which of the following has this type of truth table

A	0	1	0	1
B	0	0	1	1
y	1	0	0	0

(1) XOR gate   (2) NOR gate   (3) AND gate   (4) OR gate

10. **Assertion :** The Boolean expressions obey commutative law i.e., A + B = B + A.

Reason : The Boolean expressions obey distributive law i.e., A + (B + C) = (A + B) + C.

Read the assertion and reason carefully to mark the correct option out of the options given below :

(1) If both assertion and reason are true and the reason is the correct explanation of the assertion.

(2) If both assertion and reason are true but reason is not the correct explanation of the assertion.

(3) If both assertion is true but reason is false.

(4) If the assertion and reason both are false.

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