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Daily Practice Problems

NEET PHYSICS

Topic - Logic Gates

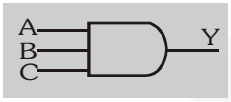
1. The output of the given logic gate is 1 when inputs A, B and C are such that :–

(1) A = 1, B = 0, C = 1

(2) A = 1, B = 1, C = 0

(3) A = B = C = 0

(4) A = B = C = 1



2. The truth table given below is for :–

(1) OR gate

(2) AND gate

(3) XNOR gate

(4) XOR gate

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

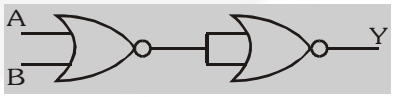
3. The arrangement shown in figure performs the logic function of a/an ..... gate :–

(1) OR

(2) XOR

(3) NAND

(4) AND



4. The output of gate is low when at least one of its input is high. This is true for :–

(1) NOR (2) OR

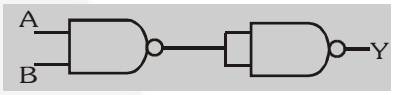
(3) AND (4) NAND

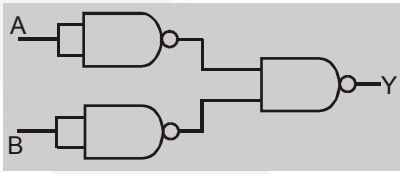
5. A two inputed XOR gate produces an output high only when its both inputs are :–

(1) same (2) different

(3) low (4) high

6. You are given two circuits as shown in following figure. The logic operation carried out by the two circuit are respectively :–





(1) AND, OR

(2) OR, AND

(3) NAND, OR

(4) NOR, AND

7. Which of the following Boolean expression is not correct :–

(1) $\overline{\bar{A}.\bar{B}} = A + B$ (2) $\overline{\bar{A} + \bar{B}} = A \,.\, B$

(3) $\overline{\overline{A.B}} = A.B$ (4) $\bar{1} + \bar{1} = 1$

8. In Boolean algebra, which of the following is not equal to zero :–

(1) $A.\bar{A}$ (2) A.0

(3) $\overline{A + \bar{A}}$ (4) $\overline{\bar{A}.0}$

9. Digital circuits can be made by repetitive use of :–

(1) OR gate (2) AND gate

(3) NOT gate (4) NAND gate

10. Which of the following relation is valid in Boolean algebra :–

(1) $A + \bar{A} = 0$ (2) $A + A = 2A$

(3) $A + \bar{A} = 1$ (4) $A + \bar{A} = A$

11. In Boolean algebra Y = A + B means that :–

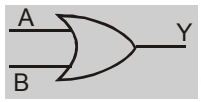
(1) Y is the sum of A and B

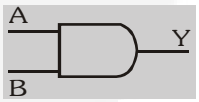
(2) Y exists when either A or B or both A and B exist

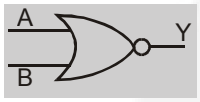
(3) Y exists only when both A and B exist

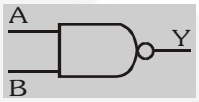
(4) Y exists when either A or B exists but not when both A and B exist

12. Given below are four logic symbols. Those for OR, NOR and NAND gates are respectively :–

(a) 

(b) 

(c) 

(d) 

(1) a, d, c (2) d, a, b

(3) a, c, d (4) d, b, a

13. The truth table shown below is for which of the following gates :–

(1) XNOR

(2) AND

(3) XOR

(4) NOR

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

14. When all the inputs of a NAND gate are connected together, the resulting circuit is :–

(1) a NOT gate (2) an AND gate

(3) an OR gate (4) a NOR gate

15. Which of the following pairs are universal gates :–

(1) NAND, NOT (2) NAND, AND

(3) NOR, OR (4) NAND, NOR

16. A NAND gate followed by a NOT gate is :–

(1) an OR gate (2) an AND gate

(3) a NOR gate (4) a XOR gate

17. The NOR gate is logically equivalent to an OR gate followed by :–

(1) an inverter (2) a NOR gate

(3) a NAND gate (4) All of above

18. The output of a two input NOR gate is in state 1 when :–

(1) either input terminals is at 0 state

(2) either input terminals is at 1 state

(3) both input terminals are at 0 state

(4) both input terminals are at 1 state

19. 'Output is LOW if and only if all the inputs are HIGH' Indicate the logic gate for which the above statement in ture :–

(1) AND (2) OR

(3) NOR (4) NAND

20. The truth table shown is of :–

(1) NAND gate

(2) NOR gate

(3) XOR gate

(4) XNOR gate

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

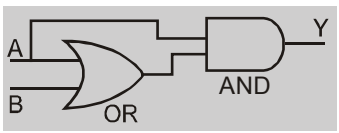
21. The output Y of the combination of gates shown is equal to :–

(1) A

(2) $\bar{A}$

(3) A + B

(4) AB



22. Which of the following relations is valid for Boolean algebra :–

(1) A + A = A (2) A. A = A

(3) $A.\bar{A} = 0$ (4) all

23. What would be the output of the circuit whose Boolean expression $Y = A\bar{B} + AB$ when A = 1, B = 0 :–

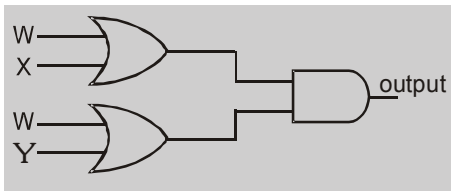
(1) 1

(2) 0

(3) both (1) & (2)

(4) none of these

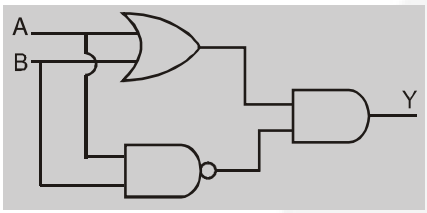
24. The diagram of a logic circuit is given below. The output of the circuit is represented by :–



(1) W. (X + Y) (2) X. (X.Y)

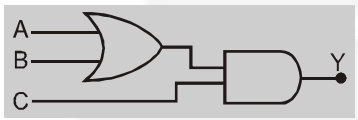
(3) W + (X + Y) (4) W + (X.Y)

25. The following configuration of gates is equivalent to :–



(1) NAND (2) OR (3) XOR (4) NOR

26. To get an output 1, the input ABC should be :–

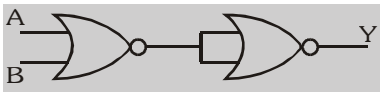


(1) 101 (2) 100 (3) 110 (4) 010

27. The output of 2 input gate is 1 only if its inputs are equal. It is true for :–

(1) NAND (2) AND (3) EX-NOR (4) EX-OR

28. The circuit-shown here is logically equivalent to :–



(1) OR gate (2) AND gate

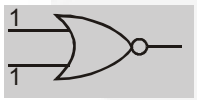
(3) NOT gate (4) NAND gate

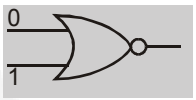
29. A two-input NAND gate is followed by a single-input NOR gate. This logic circuit will function as :–

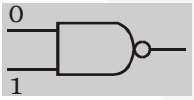
(1) an AND gate (2) an OR gate

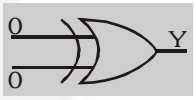
(3) a NOT gate (4) a NOR gate

30. Which of the following will have an ouput of 1 :–

(a) 

(b) 

(c) 

(d) 

(1) a (2) c (3) b (4) d

Answer Key

Que.	1	2	3	4	5	6	7	8	9	10
Ans.	4	3	1	1	2	1	4	4	4	3
Que.	11	12	13	14	15	16	17	18	19	20
Ans.	2	3	1	1	4	2	4	3	4	3
Que.	21	22	23	24	25	26	27	28	29	30
Ans.	1	4	1	4	3	1	3	1	1	2