Digital Logic Design Daily Assignments Day - 1

1 The dual of a Boolean theorem is obtained by
   (a) interchanging all zeros and ones only (b) changing all zeros to ones only
   (c) changing all ones to zeros only   d) interchanging operators and identity elements

2. In Boolean Algebra `1' is called

   (a) Additive identity   (b) Multiplicative identity   (c) Either 1 or 2   (d) None

3. In Boolean Algebra `0' is called
   (a) Additive identity   (b) Multiplicative identity   (c) Both 1 and 2   (d) None

4] What is dual of $A+[B+(AC)] + D$

(a) $A+[B(A+C)] + D$

(b) $A[B+AC] D$

(c) $A+[B(A+C)] D$

(d) $A[B(A+C)] D$

5. In the following equations the equals sign means is equal to Which of the following is a positive logic?
   (a) 0 = 0 V   and 1 = +5 V
   (b) 0 = 0 V and 1 = -5 V
   (c) 0 = +5 V and 1 = 0 V
   (d) None of these

6. The dual of Boolean theorem $x(y+z) = xy+xz$ is

   (a) $x + yz = xy + xz$ (b) $x(y+z) = (x+y)(x+z)$ (c) $x+yz = (x+y)(x+z)$ (d) None

7. Given Boolean theorem AB+A'C+BC = AB+A'C which of the following is true?
(a) (A+B)(A'+C)(B+C) = (A+B)(A'+C)
(b) AB+A' C+BC = AB+BC
(c) AB+A' C+BC = (A+B)(A'+C)(B+C)
(d) (A+B)(A'+C)(B+C) = AB+A' C

8. The voltage levels for positive logic system
   a) must necessarily be positive
   (b) must necessarily be negative
   (c) may be positive or negative
   (d) must necessarily be 0 V and 5 V

9. The voltage levels for negative logic system
   (a) must necessarily be negative
   (b) must necessarily be positive
   (c) need not be negative
   (d) must necessarily be 0 V and –5 V

10. **The dual of a Boolean expression is obtained by**
   (a) interchanging all 0s and 1s
   (b) interchanging all 0s and 1s, all + and '·' signs
   (c) interchanging all 0s and 1s, all + and '·' signs and complementing all the variables
   (d) interchanging all + and '·' signs and complementing all the variables

11. which one of the following is the dual form of the Boolean identity?

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

(a) $AB + \overline{A} C = AC + \overline{A} B$

(b) $(A+B) + (A+C) = (A+C)(A+B)$

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

(d) $AB + \overline{A} C = AB + \overline{A} C + BC$

12. The Boolean theorem:

$AB + \overline{A}C + BC = AB + \overline{A}C$ corresponds to

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

(b) $AB + \overline{A}C + BC = AB + BC$

(c) $AB + \overline{A}C + BC = AB + BC$

(d) $(A+B).(\overline{A}+C).(B+C) = (AB).(\overline{A}C)$

13. Given Boolean theorem, $AB+\bar{A}C+BC = AB+\bar{A}C$. Which one of the following identities is true?

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

(b) $(AB+\bar{A}C+BC) = AB+BC$

(c) $AB+\bar{A}C+BC = (A+B)(\bar{A}+C)(B+C)$

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

14. $AB + \overline{A}C = (A + C)(\overline{A} + B)$ Which one of the following is the dual form of the Boolean identity given above?

(a) $AB + \overline{A}C = AC + \overline{A}B$

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

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

(d) $AB + \overline{A}C = AB + \overline{A}C + BC$

15. If A and B are Boolean variables, then what is $(A + B).(A + \overline{B})$ equal to?

(a) B

(b) A

(c) A + B

(d) AB