



SRI RAMAJAYAM GLOBAL SENIOR SECONDARY CBSE SCHOOL

UNIT TEST- 3 (24.07.2020)

STD: XI

TIME: 01.30 Hrs

SUBJECT: COMPUTER SCIENCE

TOTAL MARKS: 50

General Instructions:

Section A: Q.no. 1 to 10 - Two mark questions answer any 9 only and carry 2 marks each.

Section B: Q.no. 11 to 16 - Three mark questions answer any 4 only and carry 3 marks each.

Section C: Q.no. 17 to 23 – Four mark questions answer any 5 only and carry 4 marks each.

Time Allotment:

Section A: 18 Minutes (9x2=18) 2 minutes per each Question.

Section B: 20 Minutes (4x5=20) 5 minutes per each Question.

Section C: 45 Minutes (5x9=45) 9 minutes per each Question.

7 Minutes for checking and presentations.

Total Time = 90 Minutes (1.30 Hrs)

Section – A (2 Marks)

I. Answer the following questions (Any 9)

9X2=18

1. What is the other name of Boolean logic? In which year was the Boolean logic / Algebra developed?
2. What is a binary decision? What do you mean by a binary valued variable?
3. What do you mean by tautology and fallacy?
4. What is a logic gate? Name the three basic logic gates.
5. What is the other name of NOT gate?
6. What is a truth table? What is the other name of truth table?
7. Write the Logical Operators.
8. Draw the venn diagram of AND (X.Y) Operator.
9. Draw the symbol of the Basic Gates.
10. Give duals for $XY+X\bar{Y} + \bar{X}Y$

Section – B (3 Marks)

II. Answer the following questions (Any 4)

4x3=12

11. State a Truth Table for **AND, OR, NOT** Gates.
12. What is the significance of **principale of duality**?
13. Prove that $X.(X+Y)=X$ truth table method.
14. Draw logic circuit diagram for the following expression: $Y=ab+ \bar{b}c+ \bar{c} \bar{a}$
15. Write any **6 theorems** of Boolean algebra.
16. What are the basic postulates of Boolean algebra?

Section – C (4 Marks)

IV. Answer the following questions (any 5)

5x4=20

17. Prove the Boolean Expressions $A+B.C = (A+B).(A+C)$ using Truth Table.
18. State and verify **absorption law** in Boolean algebra using truth table method.
19. Draw a logical circuit diagram for the following Boolean expression:
$$F = (A+Y).(\bar{X}+\bar{Z}).(Y+Z)$$
20. State **DeMorgan's laws** of Boolean algebra and verify them using truth table.
21. State and prove the absorption laws [i. $X+XY=X$ and ii. $X(X+Y)=X$] algebraically.
22. Using truth table, prove that: $AB+BC+C\bar{A} = AB+C\bar{A}$
23. In Boolean Algebra, verify using truth table that $(X+Y)' = X'Y'$ for each X, Y in {0, 1}.

*****All the Best*****

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