Brain International School

Vikas Puri, New Delhi

ASSIGNMENT NO. 2

SUBJECT: COMPUTER SCIENCE CLASS-XI MAY,2025

CH 3: Boolean Algebra

Q1. Define Boolean Algebra. Mention its significance in computer science

Q2. List the three basic logic gates. Draw their symbols and truth tables.

Q3. Differentiate between Universal Gates and Basic Gates. Give examples.

Q4. Draw the truth table for the following logic expression:

Y = A + B'

Q5. Prove the following Boolean identity using a truth table:

A + B·C = (A + B)(A + C)

Q6. Construct the truth table for the expression:

A·B + A·C

Q7. Draw the logic circuit for the expression:

Y = (A · B) + (A' · C)

Q8. Write the dual of the expression:

A + 0 = A

Q9. Construct a truth table for the expression:

(A + B)(A + C)

Q10. Using De Morgan's Theorems, express the complement of:

F = A + B

Q11. Identify the gate represented by the Boolean expression:

Y = (A + B)'

Q12. What is the output of a NOR gate when both inputs are 0? Justify using a truth table.
(Gate + Table – 1 mark)

Q13. Simplify the following using Boolean laws:

(A + B)(A + B')

Q14. Construct the logic circuit for:

F = (A + B') · C

Q15. Draw the logic circuit and truth table for a NAND gate.