Time : 3 Hours   Max. Marks : 40

PART – A
(Short Answer)

Answer **all** questions. **Each** answer carries **1** mark.   (6×1=6)

1. State the symbol of material equivalence.

2. Give the binary equivalent of decimal 11.

3. Who invented Boolean logic ?

4. The statement form that has both true and false substitution instances.

5. Convert binary equivalent 10100 to its decimal equivalent.

6. What are constant symbols ?

PART – B
(Short Essays)

Answer **any six** questions. **Each** answer carries **2** marks.   (6×2=12)

7. Differentiate Decimal number and Binary number.

8. What is a tautology statement form ?

9. Define logic.

10. Explain implication with a truth table.

P.T.O.

11. Write a note on contingent statement forms.
12. Define a simple statement.
13. What is an argument form ?
14. Give a brief account of conjunction.

PART – C
(Essay)

Answer **any four** questions. **Each** answer carries **3** marks.   (4×3=12)

15. State De Morgan's theorem and draw the truth table.

16. Differentiate between Truth and Validity.

17. Define truth functional compound statement and give its symbolic representation.

18. Define Argument form.

19. Symbolize the following :
    a) If p then q and r
    b) neither p nor q
    c) if both a and b then both c and d.

20. Write a note on logical equivalence.

PART – D
(Long Essay)

Answer **any two** questions. **Each** answer carries **5** marks.   (2×5=10)

21. Elucidate on the various Truth functional statements and their truth tables.

22. Examine the three basic logical operators in Boolean Algebra with the help of truth tables and logical gates.

23. Distinguish between a statement form and an argument form.

24. Explain the nature, scope and advantages of symbolic logic.

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