

**Third Semester FYUGP Degree (Reg) Examination November
2025**

**KU3DSCPHL201 - SYMBOLIC LOGIC AND
FUNDAMENTALS OF COMPUTATION**

2024 Admission onwards

Time : 2 hours

Maximum Marks : 70

Section A

Answer any 6 questions. Each carry 3 marks.

1. Differentiate truth and validity.
2. What is meant by logical constants?
3. Symbolize the following argument.
If a metal is gold, then it is yellow. This metal is gold. Therefore, it is yellow. (G, Y)
4. Define statement form.
5. Use truth table to characterize the following statement form as biconditional or not.
 $(q \vee p) \equiv (p \supset q)$
6. Convert the following binary numbers into decimal numbers.
a) 1001
b) 1100
7. Convert the following decimals into binary numbers.
a) 7
b) 13
8. NAND gate

Section B

Answer any 4 questions. Each carry 6 marks.

9. Explain the truth table method for validating arguments.
10. Define argument form. What is meant by specific form of an argument? Illustrate with the help of examples.
11. State De-Morgan's theorem and construct truth table for any of them.

12. Give below is the input/output correlation in a logic gate. Identify the gate and prepare the truth table by substituting binary digits corresponding to On/Off positions. Present the MIL symbol also.

Input A	Input B	Output
Off	Off	Off
Off	On	On
On	Off	On
On	On	On

13. Describe the input-output correlation in the case of AND gate and NAND gate.
14. Explain the functions of AND gate with the help of truth table.

Section C

Answer any 2 questions. Each carry 14 marks.

15. Explain inclusive and exclusive disjunctions and their partial common meaning with the help of truth tables.
16. Describe the truth functional connectives in symbolic logic. Demonstrate the truth tables for material implication and material equivalence.
17. Examine the nature of symbolic logic and its merits over traditional logic.