

**UNIT- 2 NUMBERS SYSTEM**  
**PART 1 : NUMBER CONVERSIONS**

**I. Answer in brief (2 marks)**

1. What is data?
2. Write the 1's complement procedure.
3. Convert  $(46)_{10}$  into Binary number
4. We cannot find 1's complement for  $(28)_{10}$ . State reason.
5. List the encoding systems for characters in memory.

**II. Answer in brief (3 marks)**

1. What is radix of a number system? Give example
2. Write note on binary number system.
3. Convert  $(150)_{10}$  into Binary, then convert that Binary number to Octal
4. Write short note on ISCII
5. Add a)  $-22_{10}+15_{10}$  b)  $2010+25_{10}$

**III. Answer in a paragraph**

1. a) Write the procedure to convert fractional Decimal to Binary  
b) Convert  $(98.46)_{10}$  to Binary
2. Find 1's Complement and 2's Complement for the following Decimal number  
a) -98 b) -135
3. a) Add  $11010102+1011012$   
b) Subtract  $11010112 - 1110102$

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**IV. Additional 2 marks and 3 marks**

1. Word length?
2. What is bit and byte?
3. Write short note on ASCII ?
4. What is the use of Unicode?
5. Differentiate ASCII & Unicode .

**Note:**

Workout all the conversions problems in our book (workshop)

**PART II: BOOLEAN ALGEBRA****V. Answer in brief (2 marks)**

1. What is Boolean Algebra?
2. Write a short note on NAND Gate.
3. Draw the truth table for XOR gate.
4. Write the associative laws?
5. What are derived gates?

**VI. Answer in brief (3 marks)**

1. Write the truth table of fundamental gates.
2. Write a short note on XNOR gate.
3. Reason out why the NAND and NOR are called universal gates?
4. Give the truth table of XOR gate.
5. Write the De Morgan's law.

**VII. Answer in a paragraph**

1. Explain the fundamental gates with expression and truth table.
2. How AND and OR can be realized using NAND and NOR gate.
3. Explain the Derived gates with expression and truth table.

**VIII. Additional 2 marks and 3 marks**

1. What are logic variable?
2. What does truth table present?
3. Explain the operator (AND, OR, NOT)?
4. What is gate?
5. Prove that de morgan's first and second theorem using truth table.
6. Draw the logic circuit of XOR gate.
7. List the gates which establish the two theorems of De Morgan.