

Assignment –II, Course : B.Sc. Sem-II Minor/MD

Learning Objectives

- Understand different complement systems
- Perform binary and decimal subtraction using complement methods
- Analyze positive and negative results in digital arithmetic

Part A: Conceptual Questions

1. Define complement in digital logic.
2. Differentiate between radix and diminished radix complement.
3. Why is 2's complement preferred over 1's complement?
4. What is end-around carry?
5. How are negative numbers represented using 2's complement?

Part B: Find Complements

Binary:

- a) 101011
- b) 011010
- c) 111000
- d) 000101

Decimal:

- a) 345
- b) 709
- c) 120
- d) 999

Part C: Subtraction Using 1's Complement (Binary)

1. $1101 - 0101$

2. $1010 - 0011$

3. $0110 - 1001$

4. $1000 - 0111$

Part D: Subtraction Using 2's Complement (Binary)

1. $1011 - 0101$

2. $1001 - 0011$

3. $0111 - 1000$

4. $0101 - 0110$

Part E: Decimal Subtraction Using Complements

Using 9's Complement:

a) $725 - 468$

b) $602 - 389$

c) $500 - 728$

Using 10's Complement:

a) $842 - 365$

b) $906 - 489$

c) $700 - 835$