

# COA Unit-2 PYQ Analysis (2022–2025)

## Computer Arithmetic

### Syllabus:

- Addition & Subtraction
  - 2's Complement Representation
  - Signed Addition & Subtraction
  - Multiplication
  - Division
  - Booth's Algorithm
  - Division Operation
  - Floating Point Arithmetic
  - Design of Arithmetic Unit
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## Topic: Addition & Subtraction

### Asked Questions

✓ June 2022

- Explain binary addition and subtraction operations.

✓ November 2022

- Perform subtraction using 2's complement method.

✓ June 2023

- Explain signed binary addition and subtraction.

### Probability



## 2026 Prediction

- Explain binary addition and subtraction with examples.
  - Explain signed addition and subtraction using 2's complement.
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# Topic: 2's Complement Representation

## Asked Questions

✓ June 2022

- Represent negative numbers using 2's complement.

✓ June 2024

- Explain 2's complement representation and arithmetic operations.

✓ June 2025

- Perform subtraction using 2's complement method.

## Probability



## 2026 Prediction

- Explain 1's and 2's complement.
  - Perform subtraction using 2's complement.
  - Advantages of 2's complement representation.
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# Topic: Signed Addition & Subtraction

## Asked Questions

✓ November 2022

- Explain signed arithmetic operations.

✓ June 2023

- Perform signed addition and subtraction.

## Probability



## 2026 Prediction

- Explain signed addition and subtraction with examples.
  - Detect overflow in signed arithmetic operations.
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# Topic: Multiplication

## Asked Questions

✓ June 2022

- Explain binary multiplication algorithm.

✓ November 2023

- Perform multiplication using hardware algorithm.

## Probability



## 2026 Prediction

- Explain binary multiplication algorithm.
  - Explain hardware implementation of multiplication.
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## Topic: Booth's Algorithm

### Asked Questions

✓ June 2022

- Explain Booth's multiplication algorithm with example.

✓ November 2022

- Perform multiplication using Booth's algorithm.

✓ June 2023

- Explain Booth's algorithm and its advantages.

✓ June 2024

- Multiply numbers using Booth's algorithm.

✓ December 2024

- Explain Booth's multiplication algorithm.

✓ June 2025

- Solve a multiplication problem using Booth's algorithm.

### Probability



### Most Repeated Topic of Unit-2

### 2026 Prediction

- Explain Booth's Algorithm with suitable example.
  - Multiply (+7) and (-5) using Booth's Algorithm.
  - Advantages of Booth's Algorithm.
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## Topic: Division Operation

### Asked Questions

✓ June 2023

- Explain restoring division algorithm.

✓ June 2024

- Explain binary division process.

✓ December 2024

- Explain division operation with suitable example.

### Probability



### 2026 Prediction

- Explain restoring division algorithm.
  - Explain non-restoring division algorithm.
  - Compare restoring and non-restoring division.
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## Topic: Floating Point Arithmetic

### Asked Questions

✓ November 2022

- Explain floating point representation.

✓ June 2023

- Explain floating point arithmetic operations.

✓ June 2024

- Explain IEEE floating point representation.

✓ June 2025

- Explain floating point addition and subtraction.

## Probability



## 2026 Prediction

- Explain floating point representation.
  - Explain floating point arithmetic operations.
  - Explain IEEE-754 standard.
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# Topic: Design of Arithmetic Unit

## Asked Questions

✓ June 2023

- Explain arithmetic unit design with block diagram.

✓ June 2024

- Explain arithmetic circuit capable of performing multiple arithmetic operations.

✓ June 2025

- Draw and explain Arithmetic Unit.

## Probability



### 2026 Prediction

- Design Arithmetic Unit with block diagram.
  - Explain arithmetic microoperations performed by Arithmetic Unit.
  - Explain arithmetic circuit using parallel adder.
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## Year-Wise PYQ Summary

Year	Questions Asked
June 2022	Binary Addition/Subtraction, Booth Algorithm
Nov 2022	2's Complement, Signed Arithmetic, Booth Algorithm, Floating Point
June 2023	Signed Arithmetic, Booth Algorithm, Division Algorithm, Arithmetic Unit
Nov 2023	Multiplication Algorithm
June 2024	Booth Algorithm, 2's Complement, Floating Point, Arithmetic Unit
Dec 2024	Booth Algorithm, Division Operation
June 2025	Booth Algorithm, Floating Point, Arithmetic Unit