

UNIT 2

1. What is the primary method used for adding two signed binary numbers?
2. Explain how two's complement is used in subtraction of signed numbers.
3. What is the purpose of the carry bit in binary addition?
4. Describe how overflow is detected in signed number addition.
5. What is a half-adder, and what are its inputs and outputs?
6. How does a full-adder differ from a half-adder?
7. What is the role of a carry-lookahead adder in fast addition?
8. Explain the concept of a ripple carry adder.
9. How does the carry-select adder improve addition speed?
10. Describe the basic process of binary multiplication.
11. What is the difference between signed and unsigned multiplication?
12. How is Booth's algorithm used in signed multiplication?
13. Explain the concept of partial products in binary multiplication.
14. What is the significance of the multiplier and multiplicand in multiplication?
15. Describe the Wallace tree in the context of fast multiplication.
16. What are the steps involved in the integer division process?
17. How does restoring division differ from non-restoring division?
18. Explain the role of the quotient and remainder in integer division.
19. What is a floating-point number, and how is it represented?
20. Describe the IEEE 754 standard for floating-point arithmetic.
21. How is the sign bit used in floating-point representation?
22. Explain the concept of the mantissa and exponent in floating-point numbers.

23. What is normalization in the context of floating-point numbers?
24. How are floating-point addition and subtraction different from integer operations?
25. Describe the process of floating-point multiplication.
26. What challenges arise in floating-point division?
27. How does rounding affect floating-point operations?
28. What is the purpose of guard bits in floating-point arithmetic?
29. Explain underflow and overflow in floating-point operations.
30. What is the role of bias in the exponent of a floating-point number?