16 Lecture - CS302

Important Subjective

1. What is an ALU?

Answer: An ALU is a digital circuit that performs arithmetic and logic operations on binary numbers.

2. What is the size of a 16-bit ALU?

Answer: The size of a 16-bit ALU is 16 bits.

3. What are the two main types of operations performed by an ALU?

Answer: The two main types of operations performed by an ALU are arithmetic and logical operations.

4. What are the sub-circuits of a 16-bit ALU?

Answer: The sub-circuits of a 16-bit ALU include adders, subtractors, logical operators, and a carry-lookahead unit.

5. What is the function of the carry-lookahead unit?

Answer: The function of the carry-lookahead unit is to generate the carry out signal for addition and subtraction operations.

6. What is the maximum number that can be represented by a 16-bit binary number?

Answer: The maximum number that can be represented by a 16-bit binary number is 65535 (2^16 - 1).

7. What is a bitwise operation?

Answer: A bitwise operation is an operation that is performed on individual bits of binary numbers.

8. What is the purpose of logical operators in an ALU?

Answer: The purpose of logical operators in an ALU is to perform logical operations, such as AND, OR, and XOR.

9. What is the difference between a half-adder and a full-adder?

Answer: A half-adder can only add two single binary digits, while a full-adder can add three binary digits, including the carry-in bit.

10. What is the significance of the size of an ALU?

Answer: The size of an ALU determines the maximum size of binary numbers that can be processed by the ALU. A larger ALU can process larger binary numbers.