4 Lecture - CS302

Important Subjective

1. **What is a number system?**
   Answer: A number system is a way to represent numerical values using symbols. Examples of number systems include decimal, binary, octal, and hexadecimal.

2. **What is binary code?**
   Answer: Binary code is a system of representing data using only two symbols, typically 0 and 1. Binary code is commonly used in digital electronics and computing.

3. **What is the difference between a digital signal and an analog signal?**
   Answer: A digital signal is a discrete signal that only has specific, discrete values, such as 0 or 1. An analog signal is a continuous signal that can have any value within a certain range.

4. **What is the purpose of a code in digital electronics?**
   Answer: Codes are used to represent information using symbols, such as binary codes for representing data in a computer. Codes can also be used for error detection and correction.

5. **What is an excess-3 code?**
   Answer: An excess-3 code is a binary code that adds 3 to the decimal value of a number before encoding it in binary. This code is used for BCD arithmetic.

6. **What is the difference between BCD and binary codes?**
   Answer: BCD codes are a type of binary code that represents each decimal digit using a 4-bit binary code. Binary codes, on the other hand, can represent any numerical value using a combination of 0 and 1.

7. **What is a Gray code?**
   Answer: A Gray code is a binary code in which only one bit changes between consecutive numbers. Gray codes are used in digital circuits for reducing the likelihood of errors during transitions between values.

8. **What is the purpose of a parity bit in a code?**
   Answer: A parity bit is used for error detection in codes. The parity bit is set to either 0 or 1 depending on whether the number of 1 bits in the code is even or odd.

9. **What is the purpose of a radix point in a number system?**
   Answer: A radix point is used to separate the integer part and the fractional part of a number in a number system. The radix point is typically represented by a decimal point in the decimal system, a binary point in the binary system, and so on.

10. **What is the significance of the base of a number system?**
    Answer: The base of a number system determines the number of symbols used to represent a value. For example, the binary system has a base of 2 and uses only two symbols, 0 and 1, to represent numerical values.