

1. Which number system uses only the digits 0 and 1?

- |                  |                |
|------------------|----------------|
| A. Decimal       | B. Octal       |
| <b>C. Binary</b> | D. Hexadecimal |

2. What is the base of the Decimal Number System?

- |              |       |
|--------------|-------|
| A. 2         | B. 8  |
| <b>C. 10</b> | D. 16 |

3. Which of the following digits is not valid in the Octal Number System?

- |             |      |
|-------------|------|
| A. 5        | B. 7 |
| <b>C. 8</b> | D. 3 |

4. What is the binary equivalent of decimal number 13?

- |         |                |
|---------|----------------|
| A. 1011 | <b>B. 1101</b> |
| C. 1110 | D. 1001        |

5. Convert binary number  $1010_2$  to decimal.

- |              |       |
|--------------|-------|
| A. 8         | B. 9  |
| <b>C. 10</b> | D. 12 |

6. What is the octal equivalent of decimal number 64?

- |       |               |
|-------|---------------|
| A. 80 | <b>B. 100</b> |
| C. 70 | D. 110        |

7. Convert octal number  $25_8$  to decimal.

- |       |              |
|-------|--------------|
| A. 19 | <b>B. 21</b> |
| C. 23 | D. 25        |

8. Convert binary number  $111111_2$  to octal.

- |              |        |
|--------------|--------|
| A. 75        | B. 76  |
| <b>C. 77</b> | D. 100 |

9. Which number system is commonly used in computer programming for representing memory addresses?

- |            |                       |
|------------|-----------------------|
| A. Decimal | B. Binary             |
| C. Octal   | <b>D. Hexadecimal</b> |

### **1. What is data representation?**

#### **Answer:**

Data representation is the method of storing and processing data in a computer system. Computers represent all data using binary digits (0 and 1).

### **2. Define the decimal number system.**

#### **Answer:**

The decimal number system is a base-10 number system that uses ten digits (0–9). Each digit's position represents a power of 10.

### **3. What is the binary number system?**

#### **Answer:**

The binary number system is a base-2 number system that uses only two digits, 0 and 1. It is the fundamental language used by computers.

### **4. What is the octal number system?**

#### **Answer:**

The octal number system is a base-8 number system that uses digits from 0 to 7. It is used as a compact representation of binary numbers.

### **5. What is the hexadecimal number system?**

#### **Answer:**

The hexadecimal number system is a base-16 number system that uses digits 0–9 and letters A–F. It is widely used in programming and digital electronics.

### **6. Why do computers use the binary number system?**

#### **Answer:**

Computers use the binary number system because electronic circuits have two stable states: ON and OFF. These states are represented as 1 and 0 respectively.

### **7. What is number conversion?**

#### **Answer:**

Number conversion is the process of changing a number from one number system to another, such as decimal to binary or binary to octal.

### Numerical Questions on Number Conversions

1. Convert  $25_{10}$  into Binary.
2. Convert  $45_{10}$  into Binary.
3. Convert  $100_{10}$  into Binary.
4. Convert  $11001_2$  into Decimal.
5. Convert  $101101_2$  into Decimal.
6. Convert  $111111_2$  into Decimal.
7. Convert  $125_{10}$  into Octal.
8. Convert  $200_{10}$  into Octal.
9. Convert  $175_8$  into Decimal.
10. Convert  $275_8$  into Decimal.
11. Convert  $357_8$  into Binary.
12. Convert  $725_8$  into Binary.
13. Convert  $11101111_2$  into Octal.
14. Convert  $101110_2$  into Octal.