Short Questions

Q 1: Define Data.

Ans: Data:

The collection of raw facts and figure is called data e.g. live I Lahore.

Q 2: Define Information.

Ans: Information:

The processed form of data is called information e.g. I live in Lahore.

Q 3: What is Number System?

Ans: Number System:

Number system defines a set of values used to represent different quantities as the basics for counting, comparing amounts, making measurements, setting limits and transmitting data can be classified as number system.

Q 4: What is Decimal Number System?

Ans: Decimal Number System:

The number system that we used in our day to day life is called the decimal number system. The decimal number system consists of 10 digits from 0 to 9 and any number can be represented by using these ten digits only. The decimal number system has base 10.

Q 5: What is Binary Number System?

Ans: Binary Number System:

The word binary means "two". The binary number system uses two digits 0 and 1 to represent any quantity. The binary number system has base 2. These digits are called binary digits.

Q 6: What is Octal Number System?

Ans: Octal Number System:

The octal number system consists of 8 digits from 0 to 7. In this number system, the base is 8.

Q 7: What is Hexadecimal Number System?

Ans: Hexadecimal Number System:

The Hexadecimal number system consists of 16 digits 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, and F. The decimal values of A, B, C, D, E, and F are 10, 11, 12, 13,14, and 15 respectively. The base of this number system is 16.

Q 8: What is Binary Arithmetic?

Ans: Binary Arithmetic:

All the arithmetic operations are performed on the numeric values inside the digital computer in binary number system. The rules of binary arithmetic are same as for decimal number system. The binary addition, subtraction, multiplication and division are binary arithmetic operations.

Q 9: What is Binary Addition?

Ans: Binary Addition:

When two bits (or binary digits) are added and if sum is equal to or greater than 2 then it is divided by 2. Then remainder is written as answer and quotient is shifted as carry to next higher column. There are four rules for binary addition. These are

(i) $0 + 0 = 0$ **(ii)** $0 + 1 = 1$ **(iii)** $1 + 0 = 1$

$1 + 1 = 0$ Plus a carry of 1 of the next higher column. If no higher column exists then $1 + 1 = 10$

Q 10: What is Binary Subtraction?

Ans: **Binary Subtraction:**

The binary subtraction is carried out by complement method inside the computer. This method will be discussed in the next topic. The subtraction with direct method is given below. There are also four rules for binary subtraction (for direct I method). These are

(i) 0 – 0 = 0 **(ii)** 1 – 0 = 1 **(iii)** 1 – 1 = 0 **(iv)** 0 - 1 = 1

With a borrow (of 2) from the next higher column.

Q 11: What is Binary Multiplication?

Ans: **Binary Multiplication:**

There are also four rules for multiplication. These are

(i) 0 x 0 = 0 (ii) 0 x 1 = 0 (iii) 1 x 0 = 0 (iv) 1 x 1 = 1

Q 12: What is Binary Division?

Ans: **Binary Division:**

The binary division is also performed in the usual way.

Q 13: What is 1's Complement?

Ans: **1'S Complement:**

1's complement of an 8-bit binary number is obtained by subtracting the number from $(11111111)_2$- For example, 1's complement of the binary number01100110 is taken as.

1 1 1 1 1 1 1 1

1 0 0 1 1 0 0 1

0 1 1 0 0 1 1 0

Hence, 1' s complement of 10011001 is 01100110

It means that 1's complement of a binary number can be directly obtained by changing all 1's with O's and all O's with 1's.

Q 14: What is 2's Complement?

Ans: **2'S Complement:**

2's complement of a binary number can be obtained by first taking 1's complement and then adding 1 in the result. For example, to obtain the 2's complement of the binary number $(01\ 1001\ 10)_2$, following steps are performed.

1-Taking 1 ' s complement of the given binary number $(01100110)_2$ such as

10011001

2- Adding 1 to the result (i.e. 1's complement of 01100110) to obtain the 2's complement.

10011001

1

10011010

Hence, 2's complement of $(01100110)_2$ is $(10011010)_2$.

Q 15: What is Fixed Point Representation?

Ans: **Fixed Point Representation:**

The numbers that are represented by giving the decimal point at a fixed correct position between two appropriate digits is called fixed-point numbers.

Or

The numbers in which the position of a decimal point is needed to represent fractional part of a number. Such numbers are called as fixed-point number.

Q 16: What is meant coding?

Ans: **Coding:**

The process of representation of numeric or non-numeric data in the form of machine code is called coding.

Q 17: What is BCD Code?

Ans: **BCD Code:**

BCD stands for Binary Coded Decimal. It is the earliest coding scheme. It is used to represent numeric data. In this coding scheme, each decimal digit ij represented by 4-bits.

Q 18: What is ASCII Coding Scheme?

Ans: **ASCII Code Scheme:**

ASCII stands for American Standard Code for Information and Interchange.) is the standard code to represent alphanumeric data. This coding scheme was published by ISO (International Standards Organization).

Q 19: What is EBCDIC Coding Scheme?

Ans: **EBCDC Code Scheme:**

EBCDIC stands for Extended Binary Coded Decimal Interchange Code, was introduced by IBM. It is an extended form of BCD code. It is 8-bit code and 256 characters can be represented in this coding scheme.

Q 20: What is Unicode?

Ans: **UNICODE:**

UNICODE stands for Universal code. It is another popular coding scheme used these days. It is a 16-bit coding scheme and 65536 (2 = 65536 characters can be represented in this coding scheme.