

Chapter-1 Number system

Ques/Ans

Q.1:- What is a number system? List different types of number system.

Ans:- A number system is a mathematical way to write number.
There are primarily four types of number system -

- 1) = Binary $\Rightarrow$ Base-2 - Digit-0 to 1
- 2) = Octal $\Rightarrow$ Base-8 - Digit-0 to 7
- 3) = Decimal $\Rightarrow$ Base-10 - Digit 0 to 9
- 4) = Hexadecimal $\Rightarrow$ Base-16 - 0 to 9 and A to F = 10 to 15

Q.2:- Explain the decimal number system?

Ans:- The base of decimal numbers is 10 because the total digit in this number system are ten (0-9)

Ex:- $(50)_{10} = (?)_2$

Q.3:- Describe the binary number system?

Ans:- The binary number system consists of only two number 0 and 1. The base of this number system is 2

Ex:- $(50)_{10} = (?)_2$ $(11010)_2 = (?)_{10}$

Q.4:- Distinguish between octal and hexadecimal number system.

Ans:- * The octal number system consists of 8 digit. The base of this

number system is 8. Digit 0 to 7

* The hexadecimal number system includes 16 elements - 0 to 9 and A to F. The letters A to F represent 10, 11, 12, 13, 14, 15.

Q.5:- How do you convert a binary number into a decimal number? Describe.

Ans:- To convert a binary number into a decimal number, follow these steps:-

- 1) = Start the calculation from right to left
- 2) = Multiply each digit by base 2 and the power of its positional value.
- 3) = Add all digits to get the decimal number.

* Chart of Binary Addition $\Rightarrow$

A	B	A + B = C	Carry over
0	0	0 + 0 = 0	No carry over
0	1	0 + 1 = 1	No carry over
1	0	1 + 0 = 1	No carry over
1	1	1 + 1 = 0	Carry over 1

* Chart of Binary Subtraction $\Rightarrow$

A	B	A - B = C	Borrow
0	0	0 - 0 = 0	No borrow
1	0	1 - 0 = 1	No borrow
1	1	1 - 1 = 0	No borrow
0	1	0 - 1 = 1	Borrow 1