**CLASS - 7**
**Lesson - 1**
**Chapter- NUMBER SYSTEM**

## Section - B

**B. Answer the following questions**

1. **Explain Number System and its commonly used types.**

**Ans :** Number system is a technique to represent numbers in computer system architecture. Computer architecture supports the following number systems.

- Binary number system(Base-2)- [0 and 1]
- Octal number system(Base-8)- [0- 7]
- Hexadecimal number system(Base-16)- [0-9, A – F]

In our daily life, Decimal Number System (Base-10) [0-9] is used.

2. **What are the rules to convert a Decimal number into Binary number?**

**Ans :** To convert a decimal number into a binary number, follow the given rules :

- Divide the given decimal number by 2.
- Write down the remainder and divide the quotient again by 2
- Repeat the step 2 till quotient is 0 or 1

Remainders, which are obtained in each step are written in reverse order, to form the binary equivalent of a decimal number.

3. **Write the rules to multiply two Binary numbers.**

**Ans:** The rule for performing multiplication of binary numbers are same as that of decimal numbers. Since binary operates in base 2, the multiplication rules we need to remember are those that involve 0 and 1 only.

$0 \times 0 = 0$
$0 \times 1 = 0$
$1 \times 0 = 0$
$1 \times 1 = 1$

4. **Briefly explain the Octal number system.**

**Ans:** Octal number system has only eight (8) digits from 0 to 7. Every number (value) represents with 0,1,2,3,4,5,6 and 7 in this number system. The base of octal number system is 8, because it has only 8 digits.

## LAB SESSION

A. **Convert the following Decimal numbers into Binary numbers :**
   a. **68 =** $(1000100)_2$
   b. **987=** $(1111011011)_2$
   c. **657=** $(1010010001)_2$

B. **Convert the following Binary numbers into Decimal numbers:**
   a. **1011=** $(11)_{10}$
   b. **100110 =** $(38)_{10}$
   c. **10101 =** $(21)_{10}$

C. **Perform Binary addition on the following:**
   a. **10101 +00111 =** $(11100)_2$
   b. **1001101 +1000101101 =** $(1001111010)_2$

c. **1101 +1001 =** $(10110)_2$

D. **Find the difference between the following Binary numbers:**

a. **10011 – 01010 =** $(1001)_2$

b. **11001001 – 01100110 =** $(1100011)_2$

c. **111 – 001 =** $(110)_2$

E. **Multiply the following Binary numbers:**

a. **101 × 011 =** $(1111)_2$

b. **1011 × 101 =** $(110111)_2$

c. **101010 ×1011 =** $(111001110)_2$

F. **Divide these Binary numbers:**

a. **1111 ÷ 11 =** $(101)_2$

b. **111001 ÷ 101 =** Quotient –$(1011)_2$ Remainder – $(10)_2$

c. **111111111 ÷ 1011 =** Quotient – $(101110)_2$ , Remainder – $(101)_2$