ST. LAWRENCE HIGH SCHOOL

FOR GOD AND COUNTRY

A Jesuit Christian Minority Institution

STUDY MATERIAL - 1

Subject: COMPUTER **Class - 7**

Chapter: About a Computer **Date: 06/05/2020**

GENERATIONS OF COMPUTERS

Generations	Technology Used	Examples
First Generation (1942-1955)	Vacuum tubes	• **ENIAC** (Electronic Numerical Integrator and Computer) • **EDVAC** (Electronic Discrete Variable Automatic Computer) • **UNIVAC**(Universal Automatic Computer) • **IBM-701** • **IBM-650**
Second Generation (1955-1964)	Transistor	• **IBM 1620** • **IBM 7094** • **CDC 1604** • **CDC 3600** • **UNIVAC 1108**
Third Generation (1964-1975)	integrated circuits (ICs)	• **IBM-360 series** • **Honeywell-6000 series** • **PDP(Personal Data Processor)** • **IBM-370/168** • **TDC-316**
Fourth Generation (1975-1989)	large scale integrated (LSI) circuits and very large scale integrated (VLSI) circuits	• **DEC 10** • **STAR 1000** • **PDP 11** • **CRAY-1(Super Computer)**
Fifth Generation	ULSI (Ultra Large Scale	• **Desktop** • **Laptop**

(1989-till present)	Integration)	• **NoteBook** • **UltraBook**

THE IPO CYCLE

All computers work on the same principle – IPO (Input-Process-Output) cycle. Initially, data is given as input via input devices (like mouse, keyboard, stylus, etc.), which is processed by our processor with the help of ALU and CU. And, the output (or result of processing) is shown through output devices (like monitor, printer, etc.).

There are two key components of a computer- Hardware and Software

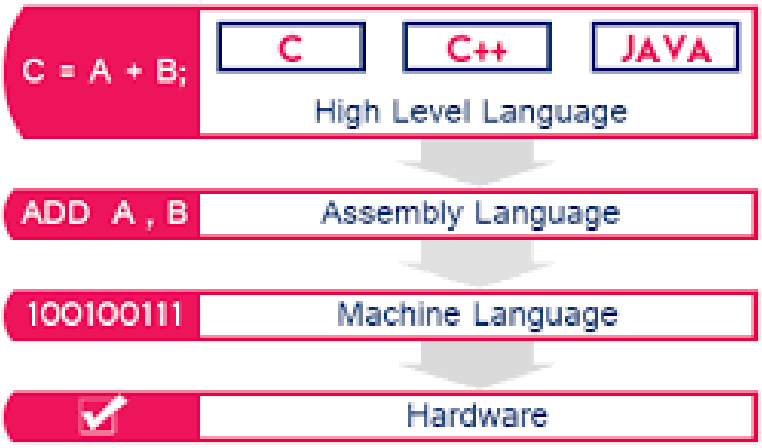
Hardware – Those parts of the computer that can be touched or felt, irrespective of being output or input devices, form the hardware.

Software- Software is a set of instructions, data or programs used to operate computers and execute specific tasks. There are two types of software:

System software : System Software is the type of software which is the interface between application software and system. System Software maintains the system resources and gives the path for application software to run. Ex- Operating System, compiler, assembler, debugger, etc.

Application software: Application Software is the type of software which runs as per user request. It runs on the platform which is provided by system software. High level languages are used to write the application software. It is a specific purpose software. Ex- MS Word, MS Excel, MS Paint, Photoshop, VLC player, etc.

COMPUTER LANGUAGES



Computer understands only binary language. But, we write code in high-level languages like C, C++, Java, etc. Therefore, we need language translators like interpreter or compiler.

Interpreter or Compiler : it is a language translator which translates high-level language to assembly-level language (mnemonic code).

Assembler : It translates assembly-level language to binary language.

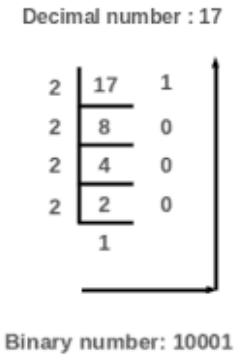
Finally, our code can communicate with the hardware of our machine. Thus, with the help of coding (to create software), we can instruct our computer to perform certain tasks.

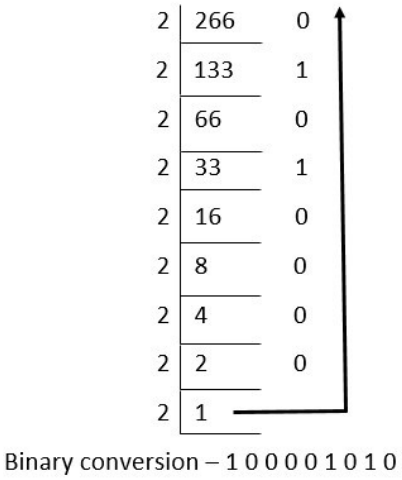
NUMBER SYSTEM

**N.B.: We will study only binary and decimal numbers.

1. DECIMAL TO BINARY

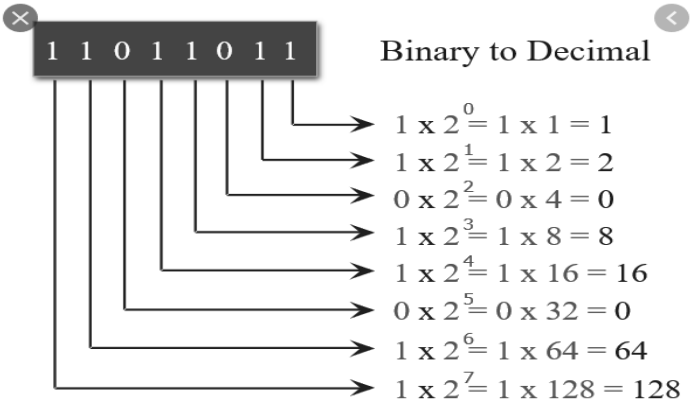
Solved Examples:





2. BINARY TO DECIMAL

Solved Example:



$$1 + 2 + 8 + 16 + 64 + 128 = 219$$

$$(11011011)_2 = (219)_{10}$$

Answer the following questions:

1. **Which generation of computers used LSI and VLSI technology?**

   Ans: Fourth generation of computers used LSI and VLSI technology as their chief component.

2. **Which generation of computers used Vacuum tubes as their chief technology?**

   Ans: First generation of computers used Vacuum tubes as their chief technology.

3. **Give few examples of first generation computers.**

   Ans: Some examples are listed below**:**

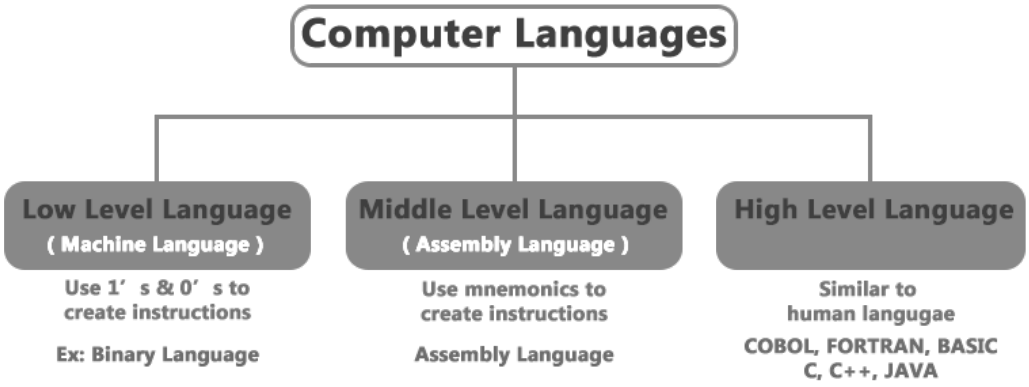
   - **ENIAC** (Electronic Numerical Integrator and Computer)
   - **EDVAC** (Electronic Discrete Variable Automatic Computer)
   - **UNIVAC**(Universal Automatic Computer)
   - **IBM-701**

4. **Give few examples of fourth generation computers.**

   Ans: Some examples are listed below**:**

   - **DEC 10**
   - **STAR 1000**
   - **PDP 11**
   - **CRAY-1(Super Computer)**

5. **Classify computer languages with proper examples.**
   Ans:



6. What is the difference between software and hardware?

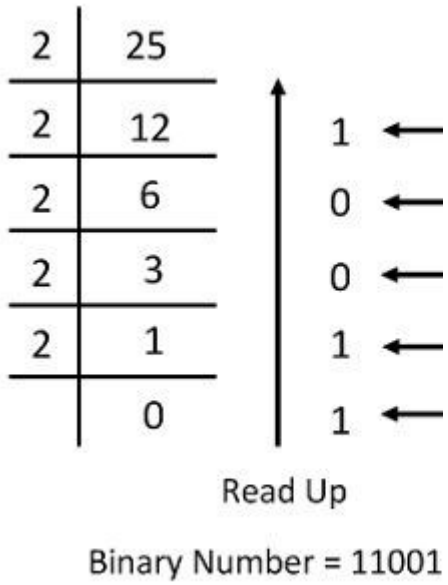
Ans: Software is a set of instructions, data or programs used to operate computers and execute specific tasks, whereas hardware describes the physical aspects of a computer.

7. Define application software. Provide some suitable examples.

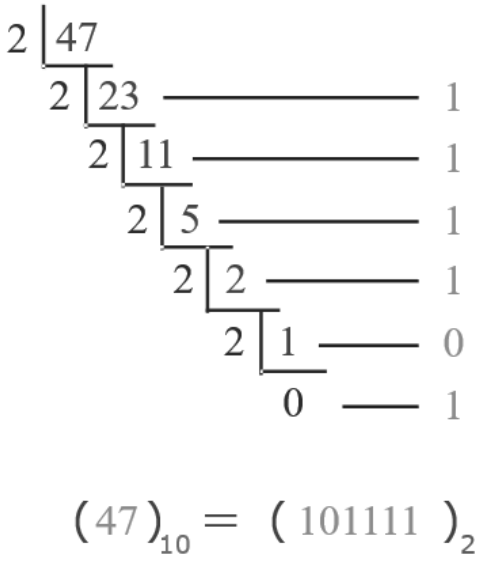
Ans : Application Software is the type of software which runs as per user request. It runs on the platform which is provided by system software. It is specific purpose software. Ex- Photoshop, VLC media player, etc.

8. Convert the following numbers into its binary equivalent :

a. $(25)_{10}$

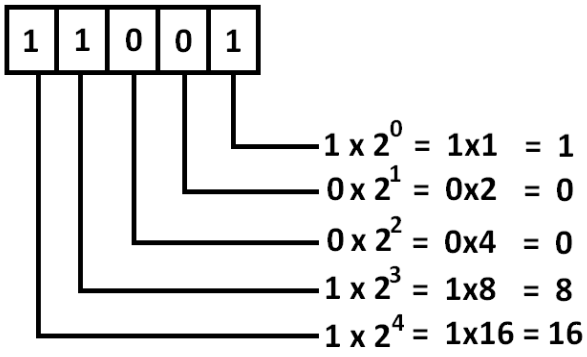


b. $(47)_{10}$



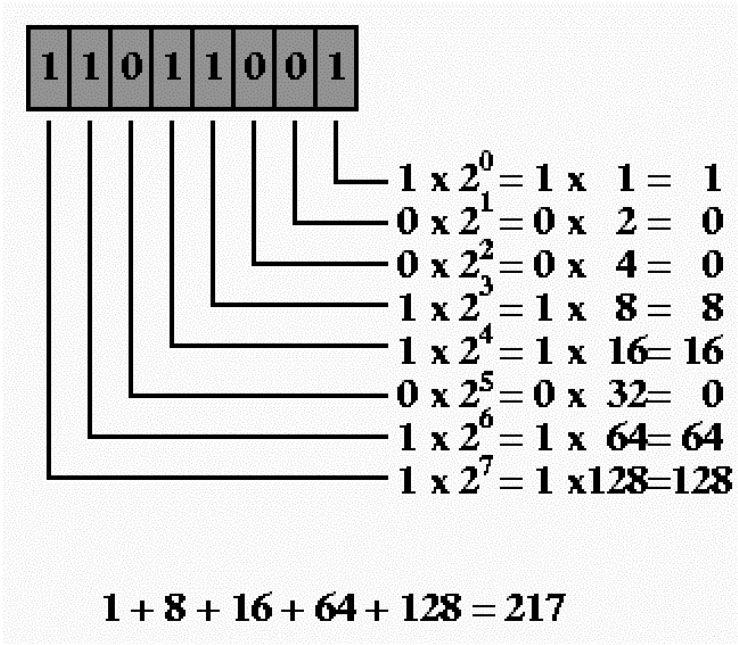
9. Convert the following binary numbers into its decimal equivalent :

a. $(11001)_2$



$1 + 0 + 0 + 8 + 16 = 25$ (Base 10)

b. $(11011001)_2$



$$1 + 8 + 16 + 64 + 128 = 217$$