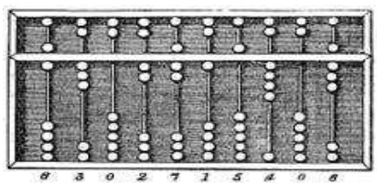
Girls' High School & College, Prayagraj
WORKSHEET - 3
Session 2020-21
Class V A-F
Subject – Computer
Evolution of Computer
(History of the Computer)

***Please ensure that the child should read and understand the Summary given in worksheet 1 and 2 before learning the answers:-**

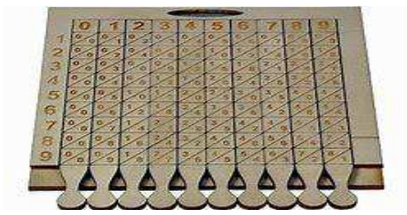
The term 'Computer' came from the word 'compute', which means 'to count' or ''to calculate'. Early men used their fingers, stones and bones to count.

ABACUS



Abacus was the first calculating device invented by Chinese around 5000 years ago. The working of this device was based on the movement of its beads up and down.

NAPIER's BONES



Napier's Bones was invented by John Napier (1550-1617), a Scottish mathematician and scientist. This invention helped in multiplying, dividing, taking square roots and cube roots. There are 9 different bones or strips with numbers marked on them.

PASCAL'S CALCULATOR

The Pascaline, invented by Blaise Pascal (France) in 1642, was a mechanical calculator. This device was invented for the purpose of addition and subtraction, via turning discs at the bottom of the device.

ANALYTICAL ENGINE

The Analytical Engine, an important step in the history of computer, was the fully-automatic calculating machine, designed by Charles Babbage in 1833.He is known as "the father of modern computer". This machine was designed to perform complex mathematical calculations.

TABULATING MACHINE

In 1890, Herman Hollerith invented the tabulating machine to process the data. This device could automatically read information which had been punched on the card. In later years, Hollerith's machine became very useful for wide varieties of statistical applications

BOOLEAN LOGIC

George Boole was an **English** mathematician. He realized that complex mathematical problems could be solved by reducing them to series of questions having either positive or negative answers. He linked them with the binary number system and represented the positive results by 1 and the negative ones by 0. This theory of **Boolean Logic** became the fundamental principle for the design of computer circuitry.

MARK 1

Howard Aiken was the primary engineer in IBM, who developed the first automatic sequence-controlled calculator, the **Mark 1** in 1944.It was capable of executing long computations automatically.

ENIAC

ENIAC (Electronic Numerical Integrator And Computer), the first general purpose electronic digital computer was invented by **John Mauchly** and **J. Presper Eckert** 1946.
It consisted of 18,000 vacuum tubes and was 1000 times faster than the Mark. It could add two large numbers in 200 microseconds.

EDSAC

EDSAC was (Electronic Delay Storage Automatic Calculator) designed by professor **Sir Maurice Wilkes** at the University of Cambridge on May 6, 1949.This computer ran the first graphical computer game, nicknamed 'Baby'.

EDVAC

EDVAC (Electronic Discrete Variable Automatic Computer) is a modern type of computer came into existence with John Von Neumann's development of software, written in binary code. It was John Von Neumann who started the practice of storing data and instructions in binary code, in the memory. **Neumann** joined hands with **Presper Eckert** (American electrical engineer) and **John Mauchly** (American physicist) in a consulting role and **EDVAC** was built using binary code in 1950. It was an improved version of ENIAC.
EDVAC'S concept of storing different programs on punched cards led to the advancement of computers that we know today.

UNIVAC I

UNIVAC I (Universal Automatic Computer I) was the world's first commercially available computer, designed by **J. Presper Eckert** and **John Mauchly** in 1951.
It was the first computer to handle both numeric and text data. It was also the first computer that was equipped with magnetic tape unit and used the buffer memory

(A) Fill in the blanks:-

a) The term 'Computer' came from the word _____.
b) The working of _____device was based on the movement of its beads up and down.
c) _____ was the first calculating device.
d) There are _____ different bones or strips with numbers marked on them.

e) The Pascaline was a _____ calculator .
f) _____ machine was designed to perform complex mathematical calculations.
g) _____ device could automatically read information which had been punched on the card.
h) _____ designed the Boolean logic.

(B) Match the following:-

a) Abacus	1642
b) Napier's Bones	1833
c) Pascaline	1890
d) Analytical Engine	5000 years ago
e) Tabulating Machine	1617

(C) Write the full form:-

a) ENIAC –
b) EDSAC –
c) EDVAC –
d) UNIVAC I –

(D) Question and Answer:-

Q1) Write any two characteristics of computer in detail.

A1) Two characteristics of computer are:-

1) SPEED → Speed is the amount of time taken by the computer in completing the task. A computer works very fast and can do large number of calculations quickly as compared to a human being. Computers are classified on the basis of Instruction that they execute per second.
2) ACCURACY → Accuracy refers to the degree of perfection of operations performed by a computer. Computers do not commit errors and are capable of handling complex instructions accurately. If the data fed into a computer is wrong, it may produce an inaccurate result.

Q2) Mention three limitation of computer.

A1) Three limitation of computer are:-

1) INCAPABILITY TO THINK → A computer cannot think and take decision on its own. In case of any error, it cannot take an alternative action.
2) NO INTELLIGENCE → Unlike human beings, a computer has no IQ. It needs instructions at every step.
3) DEPENDENCE ON POWER → A computer is an electronic machine, thus its dependence on power makes it costly.

Q3) Write a short note on the device – Abacus.

A3) Abacus was the first mechanical device for calculations, developed in China. It was made up of a wooden frame with rods, each having beads. The frame is divided into two parts- Heaven and Earth. Each rod in Heaven has 2 beads and each rod in Earth has 5 beads. It was used for addition, subtraction, multiplication, and division.

Q4) Give a brief explanation on Analytical Engine.

A4) Charles Babbage invented a working model of mechanical computer, called the Difference Engine in 1822 and the Analytical Engine in 1833. The Analytical Engine had five units – Input, Output, Store, Mill and Control. These units worked like the modern computer. All the computers which are used nowadays, are based on it. Store was used for storing the data and Mill was the Calculating Unit. Control unit was used for supervising all the units.

Q5) State the difference between second generation and third generation computers.

A5) **SECOND GENERATION**	**THIRD GENERATION**
1) The second generation computers used transistors in place of Vacuum tubes.	1) Integrated circuits(IC) were used as the main technology in these computers.
2) These computers relied on Magnetic Tapes.	2) Magnetic disks were used for the storage.
3) Fortran, Cobol, Basic languages came into existence in this generation.	3) PASCAL, RPG languages came into use during this time.
4) Punched cards and paper tapes were used as input devices, and output was presented through printouts.	4) Keyboard was used as an input device. Whereas, Monitors and Printers were used as output devices.
5) These computers were faster, cheaper, smaller and more efficient than the computers of first generation. For example: IBM 1400, IBM 350, etc	5) These computers were small in size, had huge storage capacity, higher calculating speed and reliability than the previous generation of computers. For example: IBM System 360, Apple 1, etc

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