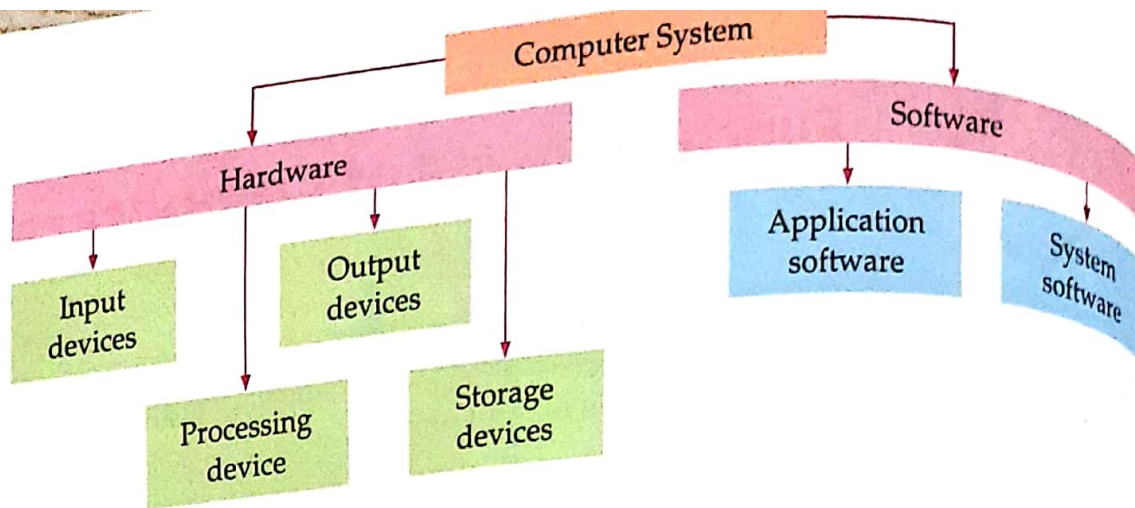


→ Read the Chapter Fundamentals of Computer (image attached) and Write the New Words in your word meaning copy and definitions also.





The term computer is derived from the word **compute** which means to calculate.

## ◆ CHARACTERISTICS OF COMPUTERS

Some of the main characteristics of computers are:

### High Speed

- ☛ Computers are very fast.
- ☛ They are capable of performing calculations of very big data.
- ☛ Their working speed is in microsecond, nanosecond and picosecond.

### Accuracy

- ☛ Computers are very accurate.
- ☛ They perform all jobs error-free.

### Storage Capability

- ☛ Computers have much more storage capacity than human beings.
- ☛ They can store any type of data such as images, videos, text or audio.

### Diligence

- ☛ Unlike human beings, computers are free from tiredness and lack of concentration.
- ☛ They can do repeated work with same speed and accuracy.

### Versatility

- ☛ Computers are very versatile machines.
- ☛ It means they can solve a complex scientific problem and play a game simultaneously.

### Reduction in Paper Work

- ☛ The use of computers leads to reduction in paper work and speeds up the process.

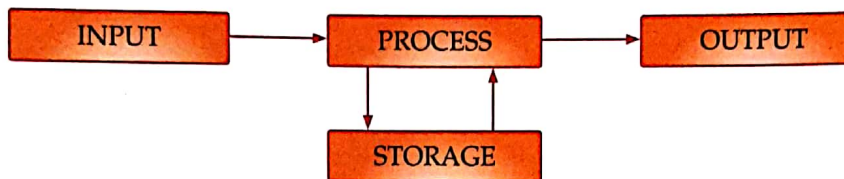
## Limitations of Computers

Computers have several limitations too.

- They can only perform tasks that they have been programmed to do.
- They cannot do any work without instructions from the user. They cannot take their own decisions.

## ◆ WORKING OF A COMPUTER

All types of computers perform the same basic operations. They accept data and instructions called as input, process it according to the instruction given and give the result which is called the output. Input devices allow the user to give input, output devices allow the user to get the result. The CPU is the processing device. In addition to these, a computer also has storage devices to store data and instructions.



### Input

Input is the collection of data or instructions entered into the computer. Any type of raw information or facts and figures is called as data. Data can be letters, numbers, special characters, images, commands and user responses (Yes, No, Cancel).

The devices with the help of which we enter data into computer are called input devices. For example, keyboard, mouse, scanner, joystick, microphone, etc.



*Keyboard*



*Mouse*



*Scanner*



*Joystick*



*Microphone*

### Process

Process is the manipulation of data as per given instruction. It is the logical sequence of steps undertaken by a program to convert data into meaningful information.

The CPU (Central Processing Unit) is the processing device of a computer. It stores data, intermediate results and instructions (program). It controls the operations of all parts of computer.



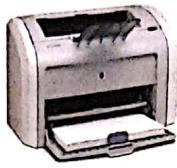
## Output

Output is the result obtained from a computer system after processing. The output is in a form that people can understand and use. Words or pictures that are displayed on a screen is the output.

The devices with the help of which we get the information from computer are called output devices. For example, monitor, printer, speakers, projector, etc.



Monitor



Printer



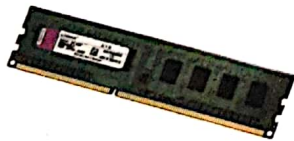
Speakers



Projector

## Storage

A computer stores data and instructions for processing in its memory. It also stores the result. The devices where the computer stores its data and information are called storage devices. For example, RAM, hard disk, pendrive, CD, etc.



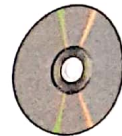
RAM



Hard disk



Pendrive



CD

RAM (Random Access Memory) is the computer's internal or primary memory which is directly accessed by the CPU. When we save a file in an app (program), it is saved in the external or secondary storage device such as hard disk or pen drive. ROM (Read Only Memory) stores the start-up instructions for the computer.

## Computer's Memory

The storage of a computer is called its memory. When we enter data into computer, it is converted into binary digits (0, 1) and then stored. A Bit is a short form of Binary Digit. A bit represents a state of ON and OFF for a machine. ON state represents the binary digit 1 and the OFF state represents the binary digit 0.



Before a computer can do anything useful, it moves the installed apps from the hard disk to RAM, to hold it temporarily.

### Units of Computer Memory

8 bits	=	1 Byte
1024 bytes	=	1 Kilobyte (KB)
1024 KB	=	1 Megabyte (MB)
1024 MB	=	1 Gigabyte (GB)
1024 GB	=	1 Terabyte (TB)
1024 TB	=	1 Petabyte (PB)
1024 PB	=	1 Exabyte (EB)
1024 EB	=	1 Zettabyte (ZB)

### Quick Quiz

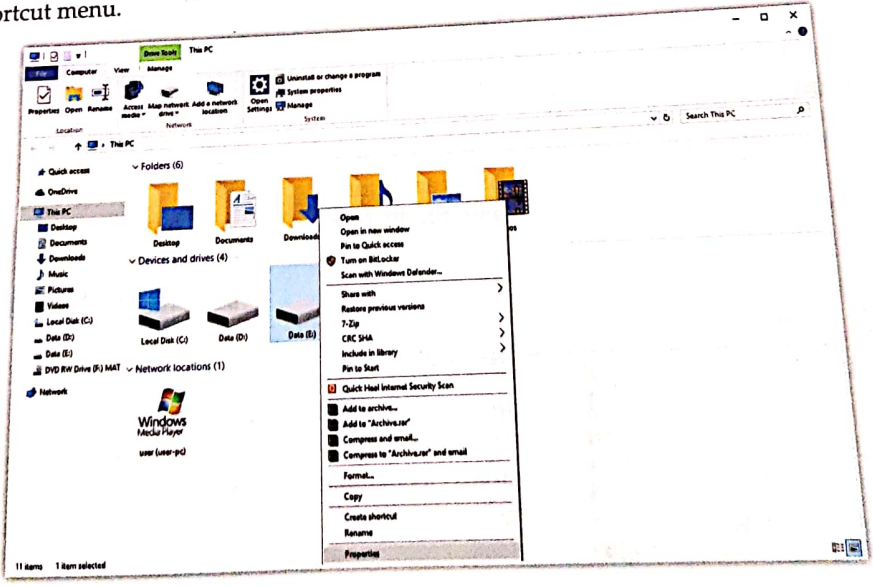
Arrange the given memory units in ascending order.

Gigabyte, Zettabyte, Terabyte, Megabyte, Bytes, Bits, Exabyte, Petabyte, Kilobyte.

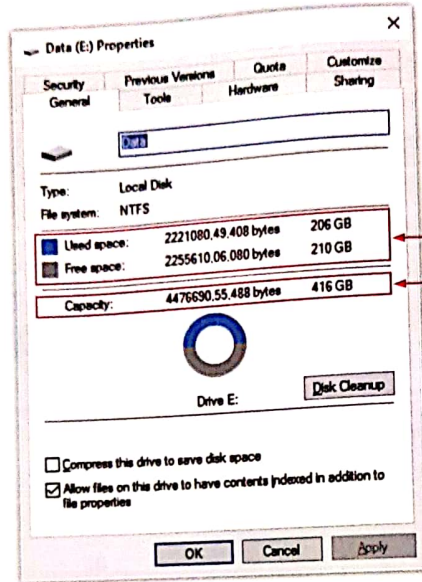
1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_

### Finding Storage Capacity of a Device

We can see the size of our hard disk by right-clicking on its icon and selecting Properties from the shortcut menu.







Used and Free Space on the Device

Total Capacity of the Device

### Education

Computers are effective in classrooms. Nowadays, students can undergo their education from their homes. They can attend their classes through a virtual classroom.



### Defence

Most of the operations in the defence sector are controlled by computers. Information is sent to various locations through a network.

## ◆ APPLICATIONS OF COMPUTERS

Computers, nowadays are widely used in a variety of fields because of their various advantages. Some of the major areas of computer applications are listed below:

### Business

This is one of the most significant areas where computers are used. These are used by all types of organisations for maintaining their accounts, sales figures, production details, etc.



### Research

Computers are used by the scientists in various research centres and laboratories where they help to perform complex calculations and data analysis with precision and accuracy.



### Entertainment

We can enjoy music, movies, and games now. These are all made possible by computers.



## Education

Computers are effectively used as teaching aids in classrooms. Nowadays with the increasing use of Internet, students can undergo online courses while sitting at their homes. They can attend the online lectures and can speak to their teachers to get the response to their queries. This virtual classroom is the future of education.



## Communication

Computers are nowadays most effectively used for communication with help of Internet. E-mails can be sent electronically to their destination within no time. Videoconferencing allows to see the distant person while talking to him. Chatting can be used to exchange text messages in real time.

## Defence

Most of the weapon systems and missile systems are controlled by the computer nowadays. Crucial information is sent to various destinations using computers.



## Healthcare

Medical Science is also revolutionised with the development of computer. Computers help doctors to diagnose complicated diseases with more accuracy. These are also used in maintaining the medical history of the patients for the better treatment. ECG, Ultrasound, CT scans, etc are also done by computerised machines.

## Entertainment

We can play computer based animated games, listen to music and watch movies on the computers. Musicians, nowadays use computer software to compose music and are also used for making animated movies like Jurassic Park, Godzilla, Krrish, etc.



**Know  
More**

The first computer animated movie was Toy Story by Pixar in 1995.



## Personal Use

Computers are now getting popular as a home gadget. They are used for writing letters, sending e-mails, chatting, web browsing, listening music, etc.

They are also used to find any type of information using the Internet.



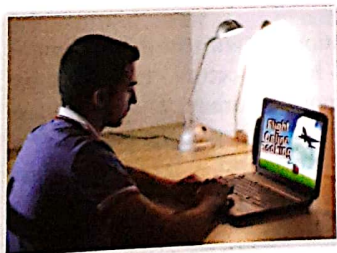
## Banking

Today banking is almost totally dependent on computer. Computers are used at banks to create and maintain the accounts of customers. Computersied ATM machines are making it even easier for customers to deal with banks.



## Multimedia

The information represented in the form of text, audio, images, animation, video and interactive content is called **multimedia**. Computers provide animation, graphical and sound technologies to develop multimedia software, such as a game or an animated e-learning software.



## Transportation

Computers help in transportation in many ways. We can book our tickets online. We get the updates on the delay through computers. Information about trains or flight details, departure and arrival timings is easily available on computers. One common use of computer today is the **GPS** (Global Positioning System). The traffic lights that help control traffic are all run by computers.



## Simulation

A **computer simulation** is a computer program that attempts to **simulate** an abstract model of a particular system. The computer simulation provides a virtual 3D model. For example, medical students learn and practice surgery procedures on computers through virtual reality. Pilots are trained to fly a plane without actually sitting in a plane using flight simulators.



Virtual: sor  
Real time:  
Compose:  
Simulate:



- ◆ A corr
- ◆ Hard
- ◆ Softw
- tasks
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- Ver:
- ◆ Cor
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- ◆ Th
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- ◆ Tl
- ◆ T
- ◆ S
- I





### Vocabulary

- Virtual:** something that has the appearance and behavior of the real thing, but is not actually the real
- Real time:** the actual time during which a process or event occurs
- Compose:** to write or create
- Simulate:** to do or make something that looks, feels, or behaves like it



### Recap

- ◆ A computer system consists of two parts - hardware and software.
- ◆ Hardware consists of the physical parts such as keyboard, monitor, hard disk, printer, motherboard, etc.
- ◆ Software is a set of instructions that tell the computer about the tasks to be performed and how these tasks are to be performed.
- ◆ Some of the main characteristics of computers are: High Speed, Accuracy, Storage Capability, Diligence, Versatility, Reduction in paper work.
- ◆ Computers accept data and instructions called as input, process it according to the instruction given and give the result which is called the output.
- ◆ The devices with the help of which we enter data into computer are called input devices.
- ◆ The CPU (Central Processing Unit) is the processing device of a computer.
- ◆ The devices with the help of which we get the information from computer are called output devices.
- ◆ The devices where the computer stores its data and information are called storage devices.
- ◆ Some of the major areas of computer applications are: Business, Research, Education, Communication, Defence, Healthcare, Entertainment, Personal Use, Banking, Multimedia, Transportation and Simulation.



### SCRATCH YOUR BRAIN

A. Tick (✓) the correct answer and fill in the blank.

- Scanner is \_\_\_\_\_ device.
 

<input type="checkbox"/> an input	<input type="checkbox"/> an output	<input type="checkbox"/> a processing
-----------------------------------	------------------------------------	---------------------------------------
- Combination of 8-bits is called \_\_\_\_\_.
 

<input type="checkbox"/> Nibble	<input type="checkbox"/> KiloByte	<input type="checkbox"/> Byte
---------------------------------	-----------------------------------	-------------------------------
- 1 GB (GigaByte) is equal to \_\_\_\_\_.
 

<input type="checkbox"/> 1024 Bytes	<input type="checkbox"/> 1024 KB	<input type="checkbox"/> 1024 MB
-------------------------------------	----------------------------------	----------------------------------

4. \_\_\_\_\_ unit of the computer system is used to enter data and instructions.

Output

Input

Processing

5. 1 Terabyte equals to 1024 \_\_\_\_\_.

Megabytes





Gigabytes

Petabyte

B. Write T for true or F for false.

1. RAM is an external memory.
2. Primary memory is cheaper than the Secondary memory.
3. The devices with the help of which we enter into computer is called output.
4. 8 bytes make 1 kilobytes.

C. Match the following.

- |  |                   |
|--|-------------------|
| 1.    | Processing device |
| 2.    | Input device      |
| 3.   | Storage device    |
| 4.  | Output device     |

D. Fill in the blanks using the given words.

Bits   Physical   CPU   Software   Hardware

1. \_\_\_\_\_ parts of computer are called hardware .
2. 0s and 1s called \_\_\_\_\_, are used to represent data in the memory.
3. \_\_\_\_\_ and \_\_\_\_\_ are two parts of a computer system.
4. \_\_\_\_\_ is the processing device of a computer.

E. Give two examples of each of the following.

- |                    |       |       |
|--------------------|-------|-------|
| 1. Input devices   | _____ | _____ |
| 2. Output devices  | _____ | _____ |
| 3. Storage devices | _____ | _____ |
| 4. Hardware        | _____ | _____ |
| 5. Software        | _____ | _____ |

F. Ans

- 1.
- 2.
- 3.

G. Ar

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

Ar

M  
sh  
al

P

C



**F. Answer in short.**

1. How many bytes are in one Megabyte.
2. What is multimedia?
3. Define hardware and software.

**G. Answer in details.**

1. What are the two major components of computers? Define them.
2. List any two characteristics of computer.
3. What is simulation?
4. How do you check the storage of the hard disk?
5. Explain the working of a computer.
6. Mention the use of computers in the following fields.
  - a. Banks
  - b. Healthcare
  - c. Education
  - d. Entertainment



**FUN ACTIVITY**

**Application Based Question**

Ms Karuna wants to take a hardcopy of a document that she had typed in her computer system. But she does not know the device she will use for this purpose. Suggest her the name of the device and also tell her whether it is an input or output device.

**Puzzle**

Categorise these components of computer and write their names in the correct box.



Hardware

Hardware

Software

Software