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 **Q1:(part)A.**

**The most three important characteristic of Computer:**

1. **Speed -**Computer is a fast device and performs the amount of works in 2

 seconds. Then a human being performing that work is month or year.

1. **Accuracy -**Computer is very accurate. It never results in kinds of error in the calculation.
2. **Diligence -**Computer is free from monetary and tiredness. Lack of concentration etc and hence can work together without waiting and error.

**Explain in each characteristic:**

1. **Reliability -**Reliability is a very big characteristic of computer. Today, big e-commerce companies, big organizations, big factories, big hospitals, big agencies, today rely on the sub computer.
2. **Versatility -**Versatility is also the main Characteristics of a computer. It means that the computer is capable of working in different areas.
3. **Storage Capacity -**A computer can store and resell any amount of information because of its secondary storage capacity.
4. **Automatic -**Computer is automatic machine because once started on job they carry on until the job is finished without any human assistance.
5. **Logical Decision -**Computer can be logical decision in nano second. In Arithmetic calculation, Railway Reservation.
6. **Multitasking -**Multitasking is also a very special characteristic of a computer**.** A user can do many things at the same time, like we are using MS Word in the computer and simultaneously listening to songs and also getting the print out.
7. **Power of Remembering -**You can get the data even after a long time. It depends on you, after how long or after how many years you need the data.
8. **NO IQ -**A computer is a dump machine. A computer is a useless device without a user it is a useless device without a user.
9. **No Feeling -**There is no feeling and emotion in the computer nor does it have knowledge and experience, it works without selfishness and never gets tired.

Q1:(Part)B.

**CHARACTERISTICS OF THE FOURTH GENERATION COMPUTER .**

* 1. The fourth generation computers have microprocessor-based systems. It uses VLSI (Very Large Scale Integrated) circuits.
	2. They are the cheapest among all the computer generation.
	3. The speed, accuracy and reliability of the computers were improved in fourth generation computers.
	4. Many high-level languages were developed in the fourth generation such as COBOL, FORTRAN, BASIC, PASCAL and C language.
	5. A Further refinement of input/output devices was developed.
	6. Networking between the systems was developed in fourth generation computer.

**Q2:(part)A.**

## **Arithmetic Logic Unit (ALU)**

An arithmetic logic unit (ALU) is the main part of the central processing unit (CPU) of a computer system. It performs all processes related to arithmetic and logic operations that need to be done on instruction words. In some processors, the arithmetic logical unit is divided into two units, an arithmetic unit (AU) and a logic unit (LU).

The (ALU) is typically designed in such a way that it has a direct input and output access to the processor main memory –the random access memory (RAM). Now, the input and outputs flow along an electronic path that is known as a bus. The input consists of an instruction word that contains an operation code or sometimes a format code. The operation code informs the ALU what operation to perform and the operands are used in the operation. Examples of operations that are regularly carried out by the ALU include:

* Arithmetic Operations: This is basically addition and subtraction. Addition can be substituted for multiplication and subtraction for division.
* Logical Operations:  This include NOR, NOT, OR, XOR etc.
* Bit shifting Operations:  This entails shifting the position of bits by a certain number of places to either the right or left, which is considered a multiplication operation.

## **Control Unit (CU)**

The control unit (CU) is a component of the central processing unit of the computer system that controls the operations of the processor. It informs the arithmetic and logic unit, the computer’s main memory and the output and input devices how to respond to the command that have been sent to the processor.  The control unit is taken to be the processor brain because it issues orders to everything and ensure that the best results are produced.

Typically, the control unit has been designed with digital circuits, encoders, decoders, logic gates and flip-flops that are arranged in a certain fixed way. There is also a special control memory that stores microprograms based on flowcharts.

The functions of the Control Unit (CU) include:

* Interprets instructions, regulate and control processor timing.
* Directs data flow through different components of the CPU.
* Handle tasks such as decoding, fletching, executing the command and storing results.
* Sends and receives control signals from other computer gadgets.
* Directs sequential data flow.
* Interprets commands and instructions

**Q2:(part)B.**

# **(RAM Random accessory memory**:

 is a form of [computer memory](https://en.m.wikipedia.org/wiki/Computer_memory) that can be read and changed in any order, typically used to store working [data](https://en.m.wikipedia.org/wiki/Data_%28computing%29) and [machine code](https://en.m.wikipedia.org/wiki/Machine_code) A w memory device allows [data](https://en.m.wikipedia.org/wiki/Data) items to be [read](https://en.m.wikipedia.org/wiki/Read_%28computer%29) or written in almost the same amount of time irrespective of the physical location of data inside the memory. In contrast, with other direct-access data storage media such as [hard disks](https://en.m.wikipedia.org/wiki/Hard_disk), [CD-RWs](https://en.m.wikipedia.org/wiki/CD-RW), [DVD-RWs](https://en.m.wikipedia.org/wiki/DVD-RW) and the older [magnetic tapes](https://en.m.wikipedia.org/wiki/Magnetic_tape_data_storage) and [drum memory](https://en.m.wikipedia.org/wiki/Drum_memory), the time required to read and write data items varies significantly depending on their physical locations on the recording medium, due to mechanical limitations such as media rotation speeds and arm movement.

RAM contains [multiplexing](https://en.m.wikipedia.org/wiki/Multiplexer) and [demultiplexing](https://en.m.wikipedia.org/wiki/Demultiplexing%22%20%5Co%20%22Demultiplexing) circuitry, to connect the data lines to the addressed storage for reading or writing the entry. Usually more than one bit of storage is accessed by the same address, and RAM devices often have multiple data lines and are said to be "8-bit" or "16-bit", etc. devices.

In today's technology, random-access memory takes the form of [integrated circuit](https://en.m.wikipedia.org/wiki/Integrated_circuit) (IC) chips with [MOS](https://en.m.wikipedia.org/wiki/MOSFET) (metal-oxide-semiconductor) [memory cells](https://en.m.wikipedia.org/wiki/Memory_cell_%28computing%29). RAM is normally associated with [volatile](https://en.m.wikipedia.org/wiki/Volatile_memory) types of memory (such as [dynamic random-access memory](https://en.m.wikipedia.org/wiki/Dynamic_random-access_memory) (DRAM) [modules](https://en.m.wikipedia.org/wiki/DIMM)), where stored information is lost if power is removed, although non-volatile RAM has also been developed.[[3]](https://en.m.wikipedia.org/wiki/Random-access_memory#cite_note-3) Other types of [non-volatile memories](https://en.m.wikipedia.org/wiki/Non-volatile_memory) exist that allow random access for read operations, but either do not allow write operations or have other kinds of limitations on them. These include most types of [ROM](https://en.m.wikipedia.org/wiki/Read_only_memory) and a type of [flash memory](https://en.m.wikipedia.org/wiki/Flash_memory) called [*NOR-Flash*](https://en.m.wikipedia.org/wiki/Flash_memory#NOR_flash).

The two main types of volatile random-access [semiconductor memory](https://en.m.wikipedia.org/wiki/Semiconductor_memory) are [static random-access memory](https://en.m.wikipedia.org/wiki/Static_random-access_memory) (SRAM) and dynamic random-access memory (DRAM).

**Q3:Answer.**

**Basic organization of Computer system :**

 **Inputting**. The process of entering data and instructions  into the computer system

 **Storing**. Saving data and instructions to make them  readily available for initial or additional processing  whenever required

 **Processing**. Performing arithmetic operations (add,  subtract, multiply, divide, etc.)

logical operations  (comparisons like equal to, less than, greater than, etc.)  on data to convert them into useful information

 **Outputting**. The process of producing useful information  or results for the user such as a printed report or visual  display

 **Controlling**. Directing the manner and sequence in which  all of the above operations are performed

**An input unit of a computer system performs the  following functions:**

1).It accepts (or reads) instructions and data from outside  world

2).It converts these instructions and data in computer  acceptable form

3).It supplies the converted instructions and data to the  computer system for further processing.

**An output unit of a computer system performs the  following functions:**

1).It accepts the results produced by the computer, which  are in coded form and hence, cannot be easily understood by us

2).It converts these coded results to human acceptable  (readable) form

3).It supplies the converted results to outside world.

**The storage unit of a computer system holds (or stores)  the following :**

Data and instructions required for processing (received  from input devices)

Intermediate results of processing

Final results of processing, before they are released to  an output device

  **Primary storage:**

(1):Used to hold running program instructions

(2):Used to hold data, intermediate results, and  results of ongoing processing of job(s)

 (3): Fast in operation

(4):  Small Capacity

(5): Expensive

(6):Volatile (looses data on power dissipation)

  **Secondary storage:**

(1):Used to hold stored program instructions

 (2):Used to hold data and information of stored jobs.

 (3):Slower than primary storage

(4): Large Capacity

  (5): Lot cheaper that primary storage

 (6): Retains data even without power