**Course Title: INTRODUCTION TO ICT**

**Dr Atif Ishtiaq**

**NAME:AHMAD QAYYUM KHAN**

**ID:CU-16223**

**Q1) Write a characteristic of Computer. Explain each in details.**

**ANS:** The characteristics of computers that have made them so powerful and universally useful are **speed**, **accuracy**, diligence, **versatility** , **storage capacity,Reliability,NO iq,no feeling,power of remembering,multitasking,logical decision,automatic,storage capacity**. Let us discuss them briefly. Computers work at an incredible **speed**.These are the characters which we will discuss.

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.
2. **Accuracy -**Computer is very accurate. It never results in kinds of error in the calculation.
3. **Diligence -**Computer is free from monetary and tiredness. Lack of concentration etc and hence can work together without waiting and error.
4. **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.
5. **Versatility -**Versatility is also the main Characteristics of a computer. It means that the computer is capable of working in different areas.
6. **Storage Capacity -**A computer can store and resell any amount of information because of its secondary storage capacity.
7. **Automatic -**Computer is automatic machine because once started on job they carry on until the job is finished without any human assistance.
8. **Logical Decision -**Computer can be logical decision in nano second. In Arithmetic calculation, Railway Reservation.
9. **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.
10. **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.
11. **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.
12. **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.

**Q 2 Write a note on each of the following.**

**(a)Machine learning**

**ANS: Machine learning** is an application of artificial intelligence (AI) that provides systems the ability to automatically learn and improve from experience without being explicitly programmed. **Machine learning** focuses on the development of computer programs that can access data and use it learn for themselves.

 **\* The Best Machine Learning Tools**

1. **Microsoft Azure Machine Learning**. Azure Machine Learning is a cloud platform that allows developers to build, train and deploy AI models. ...
2. IBM Watson. No, IBM's Watson Machine Learning isn't something out of Sherlock Holmes. ...
3. Google **TensorFlow**. ...
4. Amazon Machine Learning. ...
5. OpenNN.

\* Three types of ML

* Supervised **Learning**. ...
* Unsupervised **Learning**. ...
* **Reinforcement Learning**.

\* – Supervised and Unsupervised **Learning**. Supervised **Learning** refers to the subset of **Machine Learning** where you generate models to predict an output variable based on historical examples of that output variable.

 **(b) 5G technology**

**ANS:** 5G is the 5th generation mobile network. It is a new global wireless standard after 1G, 2G, 3G, and 4G networks. 5G enables a new kind of network that is designed to connect virtually everyone and everything together including machines, objects, and devices.

\* 5G wireless technology is meant to deliver higher multi-Gbps peak data speeds, [ultra low latency](https://www.qualcomm.com/news/onq/2019/05/13/how-5g-low-latency-improves-your-mobile-experiences), more reliability, massive network capacity, increased availability, and a more uniform user experience to more users.

**\* Verizon** introduced 5G in 2019 in parts of many cities in the first part of the year with plans to have 5G in more than 30 U.S. cities by the end of the year.

\* How 5G Works. Like other cellular networks, 5G networks use a system of cell sites that divide their territory into sectors and send encoded data through **radio** waves. Each cell site must be connected to a network backbone, whether through a wired or **wireless** backhaul connection.

 **(c) Central processing Unit (CPU)**

**ANS: CPU**  the abbreviation for central processing unit. Sometimes referred to simply as the central processor, but more commonly called a processor, the **CPU** is the brains of the computer where most calculations take place.

A central processing unit (**CPU**), also called a central **processor**, main **processor** or just **processor**, is the electronic circuitry within a computer that executes instructions that make up a computer program.

A central processing unit (**CPU**) is an important part of every computer. The **CPU** sends signals to control the other parts of the computer, almost like how a brain controls a body. The **CPU** is an electronic machThe form, [design](https://en.wikipedia.org/wiki/CPU_design), and implementation of CPUs have changed over the course of their history, but their fundamental operation remains almost unchanged. Principal components of a CPU include the [arithmetic logic unit](https://en.wikipedia.org/wiki/Arithmetic_logic_unit) (ALU) that performs arithmetic and [logic operations](https://en.wikipedia.org/wiki/Logic_operation), [processor registers](https://en.wikipedia.org/wiki/Processor_register) that supply [operands](https://en.wikipedia.org/wiki/Operand) to the ALU and store the results of ALU operations, and a control unit that orchestrates the fetching (from memory) and execution of instructions by directing the coordinated operations of the ALU, registers and other components.

Most modern CPUs are [microprocessors](https://en.wikipedia.org/wiki/Microprocessor), where the CPU is contained on a single [metal-oxide-semiconductor](https://en.wikipedia.org/wiki/Metal-oxide-semiconductor) (MOS) [integrated circuit](https://en.wikipedia.org/wiki/Integrated_circuit) (IC) chip. An IC that contains a CPU may also contain [memory](https://en.wikipedia.org/wiki/Computer_memory), [peripheral](https://en.wikipedia.org/wiki/Peripheral) interfaces, and other components of a computer; such integrated devices are variously called [microcontrollers](https://en.wikipedia.org/wiki/Microcontroller) or [systems on a chip](https://en.wikipedia.org/wiki/System_on_a_chip) (SoC). Some computers employ a [multi-core processor](https://en.wikipedia.org/wiki/Multi-core_processor), which is a single chip or "[socket](https://en.wikipedia.org/wiki/CPU_socket)" containing two or more CPUs called "cores"

 ine that works on a list of computer things to do, called instructions.

 **(d)Non-Positional Number Systems**

# **ANS:** A **non**-**positional number system** uses a limited **number** of symbols in which each symbol has a value. However,the **position** a symbol occupies in the **number** normally bears no relation to its value-the value of each symbol is fixed. The roman **number system** is a good example of a **non**-**positional number system**

 types of positional number systems are there as follows.

The common **numeral systems** in computer science are binary (radix 2), octal (radix 8), and hexadecimal (radix 16).

**Q 3 Solve the following questions.**

* 1. **Convert (110101010 )2  ( )10.**

 **ANS:(110101010 )2  (426 )10.**

* 1. **Multiply binary numbers 10001010 and 10101101**

**ANS:**  1010000