

Chapter 1:

Introduction to

Computer

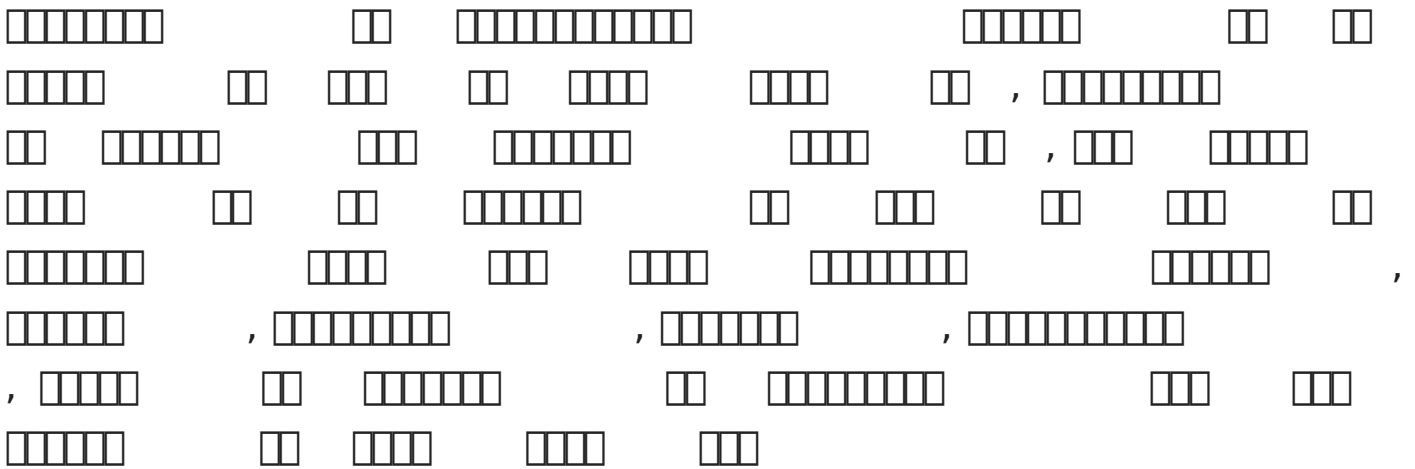
NIELIT Official Syllabus - Chapter 1 Topics:

Computer & Latest IT Gadgets, Evolution of Computers & Applications, IT Gadgets and Applications, Hardware (CPU, Input Devices, Output Devices, Computer Memory & Storage), Software (Application Software, Systems Software, Utility Software, Open Source & Proprietary Software, Mobile Apps)

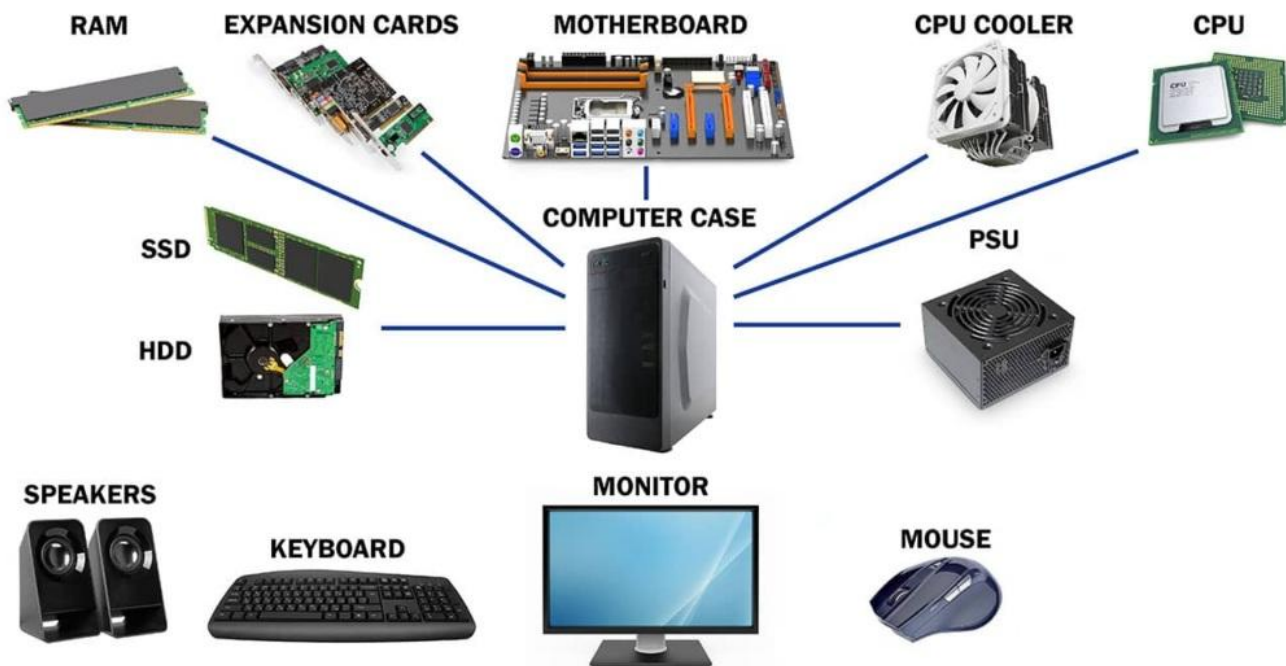
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Introduction of Computer

A computer is an electronic device that accepts data as input, processes it according to instructions, stores it, and produces meaningful information as output. It is widely used in education, business, healthcare, banking, communication, science, and entertainment.



PARTS OF A COMPUTER



Characteristics of Computer System

A computer is an electronic device that processes raw data into meaningful information. Its core characteristics include **speed**, **accuracy**, **diligence**, **versatility**, and massive **storage**

Speed: Computers operate at incredible speeds, processing millions to billions of instructions per second. Speeds are measured in micro- or nanoseconds, often denoted in Gigahertz (GHz) or operations per second.

Accuracy: They execute complex mathematical and logical operations with a high degree of precision. Any errors typically stem from incorrect inputs or software bugs, a concept known as "Garbage In, Garbage Out" (GIGO).

Diligence: Unlike humans, computers do not experience fatigue, boredom, or a lack of concentration. They can perform repetitive tasks for extended periods without losing consistency or making errors.

Versatility: Computers are incredibly adaptable and can perform entirely different types of work simultaneously or sequentially, from basic document processing to heavy data analysis and graphics rendering.

Storage and Memory: They can store immense volumes of data—including text, images, and video—for long periods and retrieve them almost instantaneously.

Automation: Computers can execute programmed tasks without continuous human intervention, increasing productivity across

industries from manufacturing to system administration.

Reliability: They are highly dependable and will produce consistent, exact outputs every time the same set of inputs and instructions are processed.

Cloud computing is a model of service delivery for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort. Cloud computing is characterized by five essential characteristics: on-demand self-service, broad network access, multi-tenancy, rapid elasticity, and measured service.

1. On-demand self-service: Cloud computing allows users to provision computing capabilities, such as additional storage space or processing power, self-servingly without requiring human interaction with each provider's service center. This is often achieved through self-service portals, command-line interfaces, or APIs. For example, a user can click a button to increase the storage capacity of a virtual machine or to spin up a new server instance.

2. Broad network access: Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms (e.g., mobile phones, PDAs, thin clients, browsers, and workstations). Cloud computing is available from anywhere and on any device. For example, a user can access their email or documents from a smartphone or a laptop.

3. Multi-tenancy: Cloud computing is a multi-tenant environment. Multiple users (tenants) share the same physical infrastructure, but their data and applications are logically separated. This allows for efficient resource utilization and cost savings. For example, multiple users can share the same server hardware, but their data is stored in separate virtual machines.

4. Rapid elasticity: Capabilities can be elastically provisioned, meaning that the amount of resources available can be scaled up or down automatically based on current demand. This allows for flexibility and scalability. For example, a web application can automatically scale up the number of servers during peak traffic times and scale down during off-peak times.

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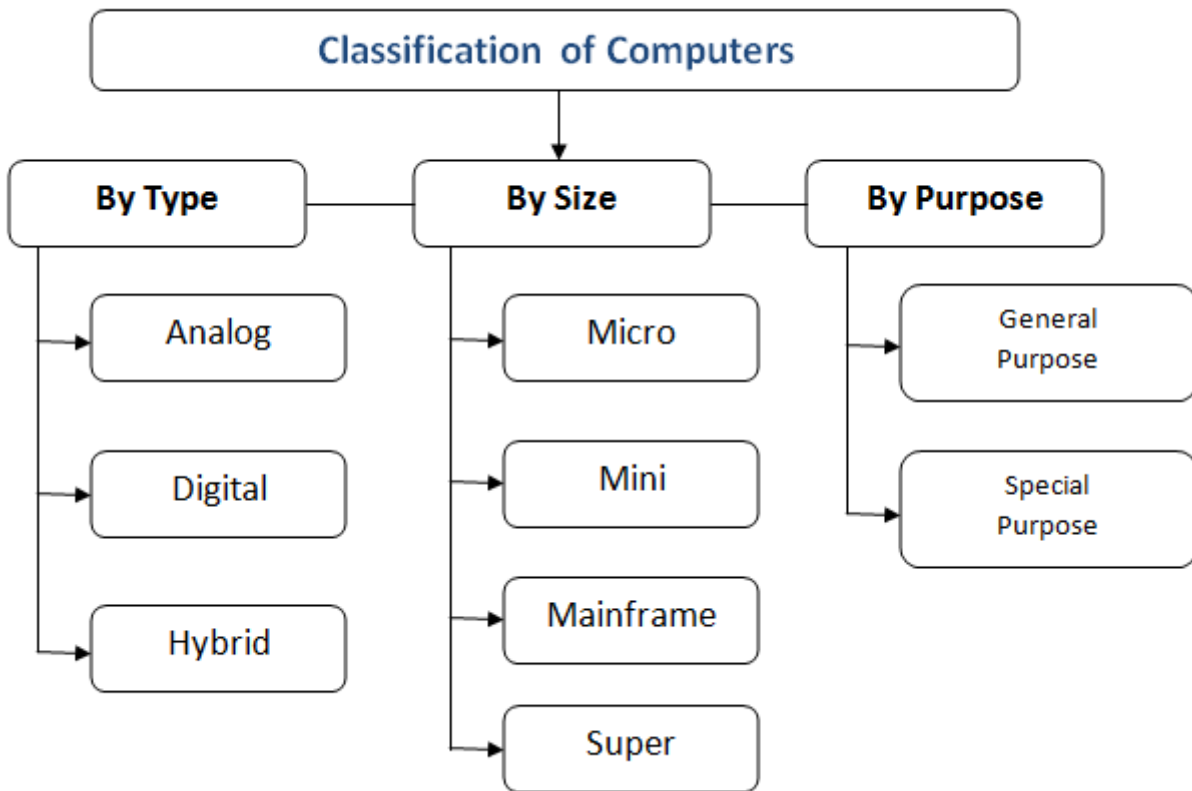
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Objectives

The primary objective of a **computer description** is to define a system's capabilities, specifications, and architecture to users or technicians. It outlines how a machine's hardware and software process input data into useful output, ensuring seamless operation, troubleshooting, and optimal hardware selection

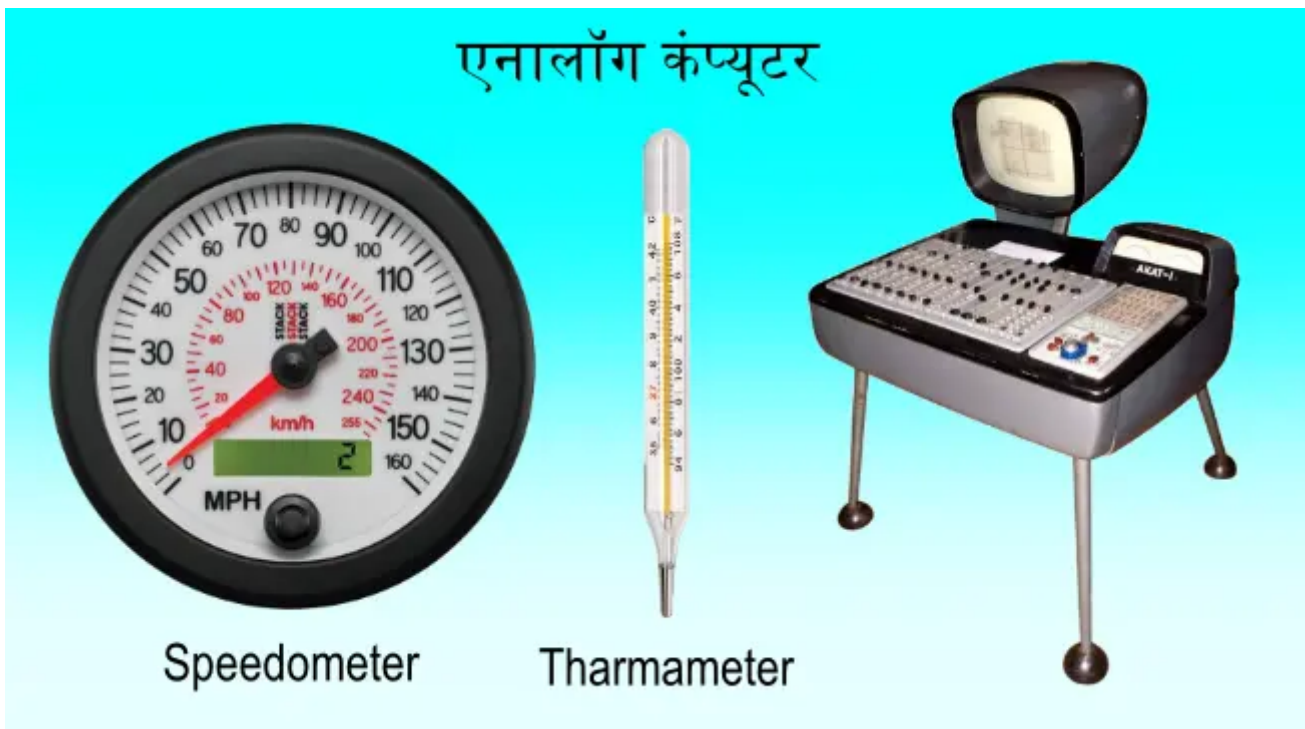
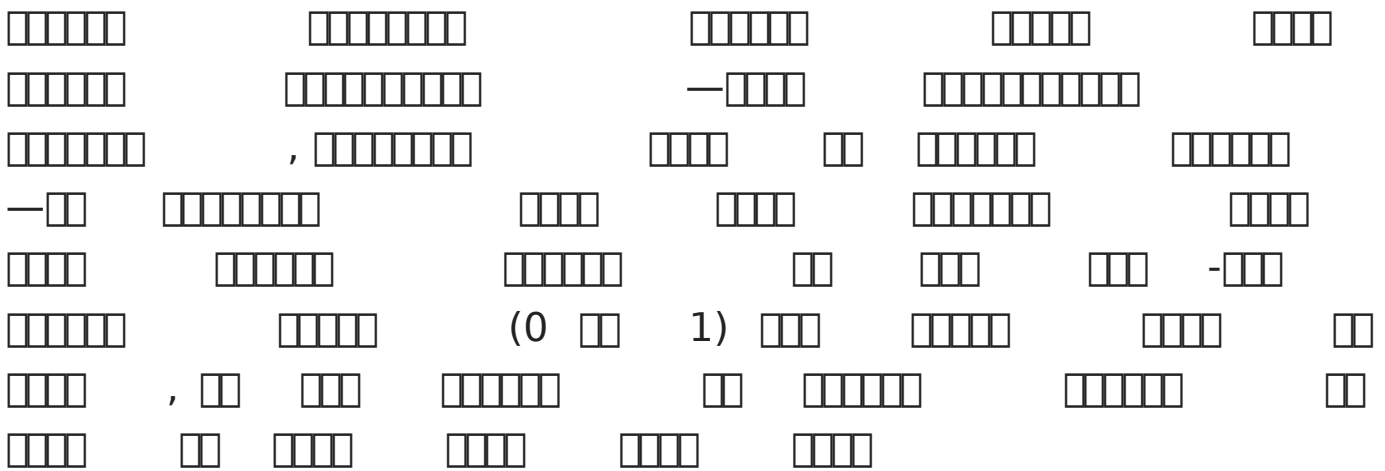
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Types of Computer



Analog Computer

An analogue computer processes data using continuously variable physical quantities—such as electrical voltages, mechanical gears, or fluid pressure. Rather than counting in discrete binary digits (0s and 1s) like modern machines, they model the mathematics of real-world physical systems directly.



Digital Computer

A **digital computer** is an electronic device that solves problems by processing information in discrete form, specifically using the **binary code of 0s and 1s**. Unlike analog systems that process continuous physical variations, digital machines rely on structured logic to manipulate letters, symbols, and numbers with high precision and reliability.

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