computer memory

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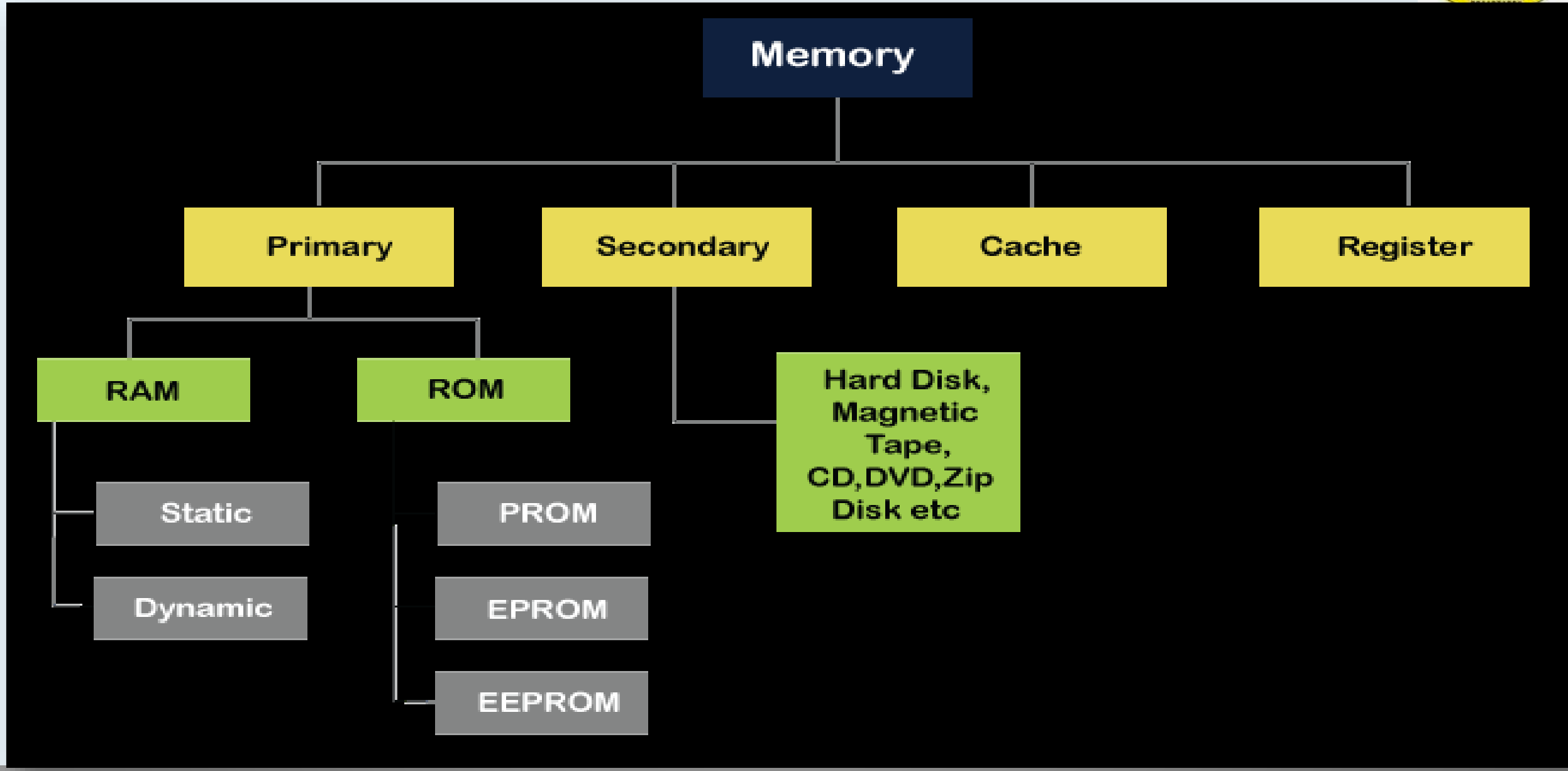

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Primary Memory	Secondary Memory
This memory is temporary memory.	This memory is permanent memory.
This memory is directly accessible by the computer's Processor/CPU.	This memory is not directly accessible by the computer's CPU.
The nature of Parts of this Primary memory varies because RAM- is volatile in nature while the ROM- Non-volatile.	This memory is always Non-volatile in nature.
The devices of primary memory are more expensive than secondary storage devices.	Secondary memory devices are not more expensive as compared to primary memory devices.
The memory devices used for primary memory are semiconductor memories.	The secondary memory devices are magnetic and optical memories.
This memory is known as a device's main or internal memory.	This memory is known as external memory or auxiliary memory of a device.
Example: RAM, ROM, Cache memory, PROM, EPROM, Registers, etc. are Examples.	Examples: Hard Disk, Floppy Disk, Magnetic Tapes, etc. are Examples.

Primary Memory

Primary memory holds only those data and instructions on which computer is currently working. It has limited capacity and data is lost when power is switched off. It is generally made up of the semiconductor device. It is a volatile memory. The two types of primary memory are Random Access Memory (RAM) & Read Only Memory (ROM).

RAM (Random Access Memory) - RAM is the internal memory of the CPU for storing data, program and result of the program. It is read/write memory which stores data till the machine is working. Some types of RAMs are Dynamic RAM

(DRAM), Static RAM (SRAM) and Synchronous Dynamic RAM (SDRAM), etc.

Dynamic Random-Access Memory (DRAM) – Dynamic memory must be constantly refreshed, or it loses its contents. This type of memory is more economical.

Static Random-Access Memory – SRAM is faster and less volatile than DRAM but requires more power and is more expensive. It does not need to be refreshed like a DRAM.

Synchronous Dynamic Random-Access Memory - A type of DRAM that can run at much higher clock speeds.

Parameter	SRAM	DRAM
Full Form	Static Random Access Memory	Dynamic Random Access Memory
Read & Write speed	Faster	Slower than SRAM
Storage component	Uses transistor to store single bit of information	Uses separate capacitor to store each bit of data
Price	Expensive than DRAM	Economical than SRAM
Power consumption	More	Less
Refresh	No need to refresh for maintaining data	Needs to be refreshed thousands of time every second
Used in	Cache memory	Main memory
Internal structure	Complex	Simpler than SRAM
Density	Less dense	Highly dense
Storage per bit	Can store many bits per chip	Cannot store many bits per chip

Secondary Memory

Secondary memory stores data on a long-term basis. It cannot be processed directly by the CPU. It must first be copied into primary storage. Secondary memory devices include magnetic disks like hard drives and floppy disks, optical disks such as CDs and CDROMs, and magnetic tapes, USB Flash drives.

Hard drive – It is a non-removable storage device containing magnetic disks or platters rotating at high speeds. The hard drives store data in segments of concentric circles. It may spin at 5,400 to 15,000 RPM.

Floppy Disk - Floppy disk is composed of a thin, flexible magnetic disk sealed in a square plastic carrier. Floppy disks were widely used to distribute software, transfer files, and create backup copies of data. To read and write data from a floppy disk, a computer system must have a floppy disk drive (FDD).

Compact Disc (CD) - A compact disc is a portable storage medium that can be used to record, store data in digital form. They are fragile and prone to scratches

.

Compact disc read-only memory (CD-ROM) - It is a storage device that can be read but can’t change or delete it.

Digital Video Disc (DVD) - A device currently used to store data in large amounts and accepts high definition material. A two-layered DVD can hold approximately 17 gigabytes of video, sound, or other data.

ROM (Read Only Memory) - ROM stores data permanently on personal computers (PCs) and other electronic devices. It performs major input/output tasks and holds programs or software instructions. It is non-volatile.

MROM (Masked ROM) - The very first ROMs were hard-wired devices that contained a pre-programmed set of data or instructions. These kinds of ROMs are known as masked ROMs which are inexpensive.

PROM (Programmable Read Only Memory) - PROM can be modified only once by a user. The user can buy a blank PROM and enter the desired contents using a PROM program.

EPROM (Erasable and Programmable Read Only Memory) - The EPROM can be erased by exposing it to ultra-violet light. EPROMs have a Quartz window in the package to expose the chip to UV light. They were widely used as the BIOS (Basic Input Output System) chips in computer motherboards.

EEPROM (Electrically Erasable and Programmable Read Only Memory) - The EEPROM is programmed and erased electrically. It can be erased and reprogrammed about ten thousand times. Both erasing and programming take about 4 to 10 milliseconds. They were also used as BIOS chips.

Flash Drives – Flash drives are small, ultra-portable storage device. They connect to computers and other devices via a built-in USB plug. They are often referred to as pen drives, thumb drives, or jump drives. Mostly they have a storage capacity from 8 GB to 64 GB.

Zip Disks – An advanced version of the floppy disk is known as Zip Disks. It was developed by Iomega. Zip disks are available in 100 and 250-MB and 750 MB capacities and they are used to store, share and back up large amounts of data.

Cache Memory - It is a very high-speed semiconductor memory which can speed up the CPU. It acts as a buffer between the CPU and main memory. Example: Registers

Virtual Memory - Virtual memory permits software to use additional memory by utilizing the hard disk drive (HDD) as temporary storage.

Quick Revision

Types	Examples
Semiconductor Memory	RAM, ROM
Optical Memory	CD-ROM, CD-R, DVD, HVD, Blu-ray Disc
Magnetic Memory	Hard Disk Drive (HDD), Floppy Disk Drive (FDD)
Flash Memory	Pen drive, Memory card etc (EEPROM Technology devices)

Output Unit

Q:1 The speed of laser printer is measured in?
A) pages per minute
B) characters per second
C) lines per minute
D) none of the given options

Q:2 PDF is a file format that stands for ?
A) Pre-Defined Format
B) Portable Device Form
C) Pre-Document Fix
D) Portable Document Format

Q:3 The language that a computer can understand and execute is called?
A) a machine language
B) a high-level language
C) an English language
D) an assembly-level language

Q:4 Which of the following memory types is volatile?
A) RAM
B) ROM
C) FLASH
D) EEPROM

Q:5 Primary memory is also known as _____ memory?

A) Internal
B) External
C) Concept
D) Virtual

Q:6 Data stored in which of the following memories CANNOT be changed?

A) RAM
B) ROM
C) EPROM
D) FLASH MEMORY

Q:7 Which of the following is the fastest memory in a computer system?

A) ROM
B) RAM
C) Cache
D) Hard Disk

Q:8 Full form of EPROM is?

A) Erasable Programmable Read Only Memory
B) Exponential Programmable Read Only Memory
C) Expandable Programmable Read Only Memory
D) Extensive Programmable Read Only Memory

Q:9 With respect to computer booting, BIOS stands for?

A) Basic input output system
B) Binary input output system
C) Binary in-out selection
D) Basic input output storage

Q10 The memory which is programmed at the time it is manufactured

[A] ROM
[B] RAM
[C] PROM
[D] EPROM

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