Memory Organization of a

Computer

Assignment Questions

(Core Concept)

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**1.** Explain the Importance of a storage device in a computer system?

**Ans** - A storage device in a computer system is crucial for long-term data retention. It stores the operating system, software applications, user files, and other data. Without a storage device, the system would lose data when powered off.

**2.** Compare and contrast the roles of a hard disk and RAM in a computer system?

**Ans** - Hard disk and RAM serve different purposes. Hard disk is non-volatile storage for long-term data, while RAM (Random Access Memory) is volatile and provides fast, temporary storage for actively running programs and data.

**3.** How does cache memory contribute to improving a computer's performance?

**Ans** - Cache memory enhances a computer's performance by storing frequently accessed data closer to the CPU. This reduces the time it takes for the CPU to retrieve information, speeding up overall system performance.

**4.** Differentiate between loading and saving in the context of computing?

**Ans** - Loading involves bringing data from external storage into the computer's memory for execution, while saving refers to storing data from memory onto a storage device for future use.

**5.** Define and differentiate between a file, a byte, and a register in computing?

**Ans** - In computing, a file is a collection of data, a byte is the basic unit of digital information, and a register is a small, fast storage location within the CPU used for temporary data storage and operations.

**6.** Provide a definition of RAM (Random Access Memory) in computing?

**Ans** - RAM (Random Access Memory) in computing is a type of volatile memory that allows quick read and write access to data. It is used by the computer's processor to store and quickly retrieve data for active programs.

**7.** Explain the difference between an object file and an executable file in the context of programming?

**Ans** - An object file contains compiled code and data in a format that is not directly executable by the computer, while an executable file is a binary file that the computer's operating system can directly execute.

**8.** Contrast the roles of a compiler and an interpreter in the software development process?

**Ans** - A compiler translates the entire source code of a program into machine code before execution, resulting in a standalone executable file. An interpreter, on the other hand, translates and executes code line by line, without generating a standalone executable, making it slower but more flexible for certain tasks.