**What are the differences among sequential access, direct access, and random access?**

**Sequential access**: Memory is divided into data units known as records. Access must be granted in a certain linear order. Addressing information that has been saved is utilized to segregate data and aid in the retrieval process. It is necessary to relocate the shared read-write mechanism from its current location to the intended location, passing and rejecting each intermediate record. As a result, the time required to access an arbitrary record is highly variable.

**Direct access**: Direct access, like sequential access, uses a shared read-write mechanism. Individual blocks or records, on the other hand, have a unique address depending on their physical location. Direct access to a general vicinity is followed by sequential searching, counting, or waiting to reach the ultimate destination.

**Random access**: Each addressable memory region has its own, physically wired-in addressing mechanism. The time required to access a specific site is constant and independent of the sequence of previous accesses. As a result, any place can be chosen at random, addressed, and accessed directly. Random access memory is used in main memory and some cache systems.

**What is the general relationship among access time, memory cost, and capacity?**

These are performance parameters which is part of the two most important characteristics of memory from a user’s point of view.

**What is the distinction between spatial locality and temporal locality?**

Spatial locality focuses on accessing data elements that are physically close to each other in memory, while temporal locality emphasizes the repeated access of the same data elements over a short period. Both concepts are important for optimizing memory and cache performance, as they help guide decisions on data placement and caching strategies to reduce access latency and improve overall system efficiency.