 Identify and briefly discuss the advantages and disadvantages of solid state secondary storage devices compared with magnetic secondary storage devices

Step 1:

Solid-state storage (SSS) is a type of computer storage media that does not have any moving parts and saves data electrically. Silicon microchips are used to create solid state storage. SSDs utilise less power and emit less heat than spinning hard disc drives or magnetic tape since they have no moving parts.

Hard disc drives, for example, are magnetic storage devices. CD, DVD, and Blu-ray discs are examples of optical storage devices. USB memory sticks and solid state drives are examples of solid state storage devices.

Step 2:

SSD access time is 35 to 100 microseconds, which is roughly 100 times faster than a hard drive. This quicker access speed allows programmes to operate faster, which is especially important for programmes that frequently access huge amounts of data, such as your operating system.

HDD - A typical HDD accesses data in 5,000 to 10,000 microseconds.

In the end, SSD triumphs in this category. A solid-state drive (SSD) is substantially faster than a hard disc drive (HDD).

Price

SSD - A solid-state drive costs more per MB (megabyte) than a hard disc drive. One or more HDDs may be included in desktop PCs with SSDs for secondary storage.

HDD - HDDs are significantly less expensive than SSDs, especially for drives larger than 1 TB (terabyte).

Bottom line: HDD wins in this category. Although SSDs have come down in price, an HDD is always going to be cheaper.

SSD with High Reliability - The SSD has no moving parts. The SSD stores data in flash memory, which delivers superior performance and reliability than a hard disc drive.

HDD - Because HDDs have moving parts and magnetic platters, they wear down and fail more quickly as they are used.

The bottom line is that SSD is the winner in this category. An SSD is more reliable than an HDD because it has fewer moving parts.

Although big SSDs are available, anything over 3 TB is normally out of most people's pricing range.

Hard disc drives (HDD) - Several terabyte hard disc drives are available at relatively low rates.

In the end, HDD is the clear winner in this area. Although massive SSD solutions are available, larger and more economical HDDs are more common.

Power

SSD - SSDs require less power than regular HDDs, resulting in cheaper energy bills over time and, in the case of laptops, longer battery life.

HDD - The HDD consumes more power than an SSD due to all of the parts necessary to spin the platters.

SSD creates no noise because it has no moving parts.

HDD - Because of its spinning platters and rotating read/write heads, an HDD can be one of your computer's loudest components.

physical sizes

SSDs come in three physical sizes: 2.5", 1.8", and 1.0", increasing the amount of storage capacity available in all sorts of PCs.

HDD - For desktops and laptops, HDDs are typically 3.5" and 2.5" in size, with no possibilities for anything smaller.

Heat

SSD - The SSD generates less heat due to its lack of moving parts and the nature of flash memory, extending its longevity and dependability.

HDD - Moving parts generate additional heat, which can slowly damage electronics over time, so the more the heat, the more wear and damage potential.

Magnetism

SSD - Magnetism has no effect on SSDs.

Because a hard drive relies on magnetism to write data to the platter, strong magnets might be used to wipe data from an HDD.