32 Lecture - CS501

Important Subjective

1. **What is a magnetic disk drive, and how does it work?**
   Answer: A magnetic disk drive is a secondary storage device used to store data. It works by using magnetic material on one or more rotating disks to store data in tracks and sectors. The read/write heads on the actuator arm access and modify the data on the disks.

   What are the different types of magnetic disk drives, and what are their differences?
   Answer: The different types of magnetic disk drives include hard disk drives, floppy disk drives, and Zip disk drives. Hard disk drives have the highest storage capacity and are commonly used in desktop computers. Floppy disk drives are a legacy technology that was commonly used in the past for small-scale storage. Zip disk drives were a medium-scale storage solution that never gained widespread popularity.

   What are the advantages and disadvantages of magnetic disk drives?
   Answer: The advantages of magnetic disk drives include their high capacity, low cost per GB, and random access capabilities. The disadvantages include their vulnerability to physical damage, data loss due to mechanical failures, and sensitivity to external factors such as electromagnetic interference.

   How is the capacity of a magnetic disk drive determined?
   Answer: The capacity of a magnetic disk drive is determined by the number of platters it has, the number of sides each platter has, the number of tracks per side, and the number of sectors per track.

   What is the seek time of a magnetic disk drive?
   Answer: The seek time of a magnetic disk drive is the amount of time it takes for the actuator arm to move the read/write heads to the correct track on the disk.

   What is the rotational speed of a magnetic disk drive, and how does it affect performance?
   Answer: The rotational speed of a magnetic disk drive is the speed at which the platters spin. It affects performance by affecting the access time, which is the time it takes for the read/write heads to find the correct sector on the disk.

   What is the difference between a solid-state drive and a magnetic disk drive?
   Answer: The main difference between a solid-state drive and a magnetic disk drive is that a solid-state drive uses flash memory to store data, while a magnetic disk drive uses magnetic material on spinning disks.

   What is RAID, and how does it increase the storage capacity of magnetic disk drives?
   Answer: RAID (Redundant Array of Independent Disks) is a technology that allows multiple magnetic disk drives to be combined into a single logical unit. This increases the storage capacity by allowing data to be stored across multiple disks.

   What is the difference between SATA and SAS interfaces for magnetic disk drives?
   Answer: SATA (Serial ATA) is a slower interface designed for consumer-grade magnetic disk

drives, while SAS (Serial Attached SCSI) is a faster interface designed for enterprise-grade magnetic disk drives.

What is the future of magnetic disk drives, and how are they being replaced?
Answer: Magnetic disk drives are being replaced by solid-state drives, which offer faster performance and greater durability. However, magnetic disk drives are still widely used and will continue to be used in some applications where high-capacity, low-cost storage is needed.