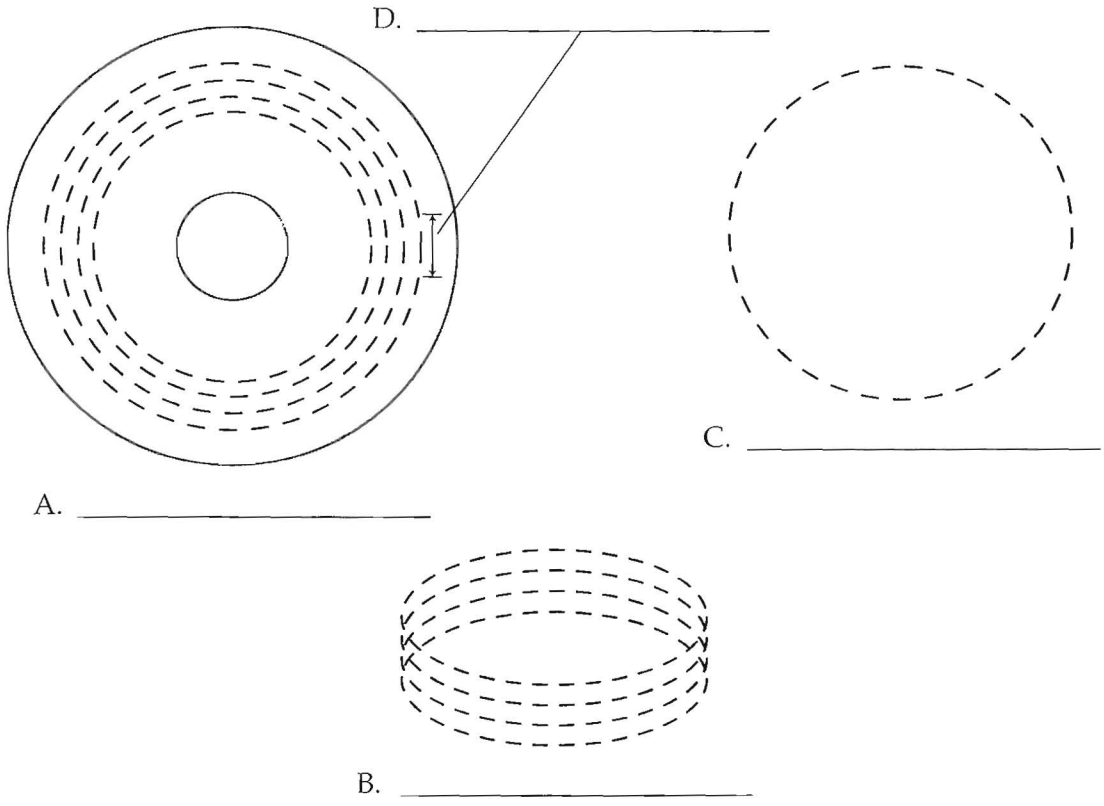
9 Magnetic Storage Devices

For the A+ Certification exam, you should be able to install, configure, maintain, and troubleshoot storage devices. You should also be able to identify the characteristics of storage device technologies, such as EIDE, SCSI, and SATA as well as identify the purposes and characteristics of disk management tools.

Practice 9.1

Identify the elements of a disk's geometry.

cluster	**sector**
cylinder	**track**



Practice 9.2

Match the disk geometry term with its definition. Not all definitions are used.

1. _____ cluster
2. _____ cylinder
3. _____ sector
4. _____ track

a. The area of a hard disk that contains information about the physical characteristics of the drive, the partitions, and the boot procedure.

b. The concentric circle of data storage area on a disk.

c. A vertical collection of one set of tracks.

d. Composed of one or more sectors and is the smallest unit that a file will be stored in.

e. Subdivision of a track, usually about 512 bytes in size.

Practice 9.3

Fill in the following statements about hard disk drive formatting. The following terms may be used more than once or not at all.

active partition	**file allocation table (FAT)**	**master file table (MFT)**
boot record		
extended partition	**master boot record (MBR)**	**partitions**

1. A hard drive can be divided into two or more logical drives called _____. 1. _____
2. The _____ contains information about the disk partition areas such as the number of bytes per sector, number of sectors per cluster, and number of sectors per track. 2. _____
3. The _____ is created when the disk is partitioned. 3. _____
4. The _____ is located at sector one, cylinder zero, head zero. 4. _____
5. Each partition has its own _____. 5. _____
6. The partition that is used to boot the operating system is called the _____. 6. _____
7. A(n) _____ and _____ contains information about where on a hard disk drive files and directories are located. 7. _____
8. The table used on a system formatted with NTFS is _____. 8. _____

Name _____

Practice 9.4

Match the file system terms with their definition. Not all of the following definitions will be used.

1. _____ basic disk
2. _____ dynamic disk
3. _____ FAT32
4. _____ HPFS
5. _____ NTFS
6. _____ VFAT

a. Uses 32 bits to identify stored data, and theoretically can store up to 2 TB of data.

b. Introduced as part of the OS/2 operating system to overcome the limitations of DOS.

c. An improved version of NTFS.

d. A file system that features improved security and storage capacity and is compatible with FAT16.

e. A method of programming the FAT16 file system to allow long file capabilities similar to FAT32.

f. An NTFS native encryption system that uses a file encryption key (FEK) to encrypt and decrypt the file contents.

g. The traditional FAT16, FAT32, and NTFS file storage systems.

Practice 9.5

Identify the disk utility needed to perform each task.

Chkdsk	**Disk Management**	**fdisk**	**Scandisk**
Disk Defragmenter	**Disk Part**	**format**	

1. Partition a hard disk drive. 1. _____
2. Prepare a disk for data storage by creating a root directory and a file allocation table. 2. _____
3. Rearrange stored files in consecutive clusters. 3. _____
4. Check for bad and lost clusters on a hard drive with Windows 98 and Windows Me as the operating system. 4. _____
5. Check for bad and lost clusters on a hard drive with Windows XP and Windows Vista. 5. _____
6. Manage disk partitions and volumes from the command prompt in Windows 2000 Server, Windows XP, and Windows Vista. 6. _____
7. Manage disk partitions and volumes from the GUI. 7. _____

Practice 9.6

Write out the full name of the acronyms listed.

1. ATA _____
2. EIDE _____
3. IDE _____
4. SAS _____
5. SATA _____
6. SCSI _____
7. SSD _____

Practice 9.7

Fill in the blanks for the statements about hard disk drive technologies. The following terms may be used more than once.

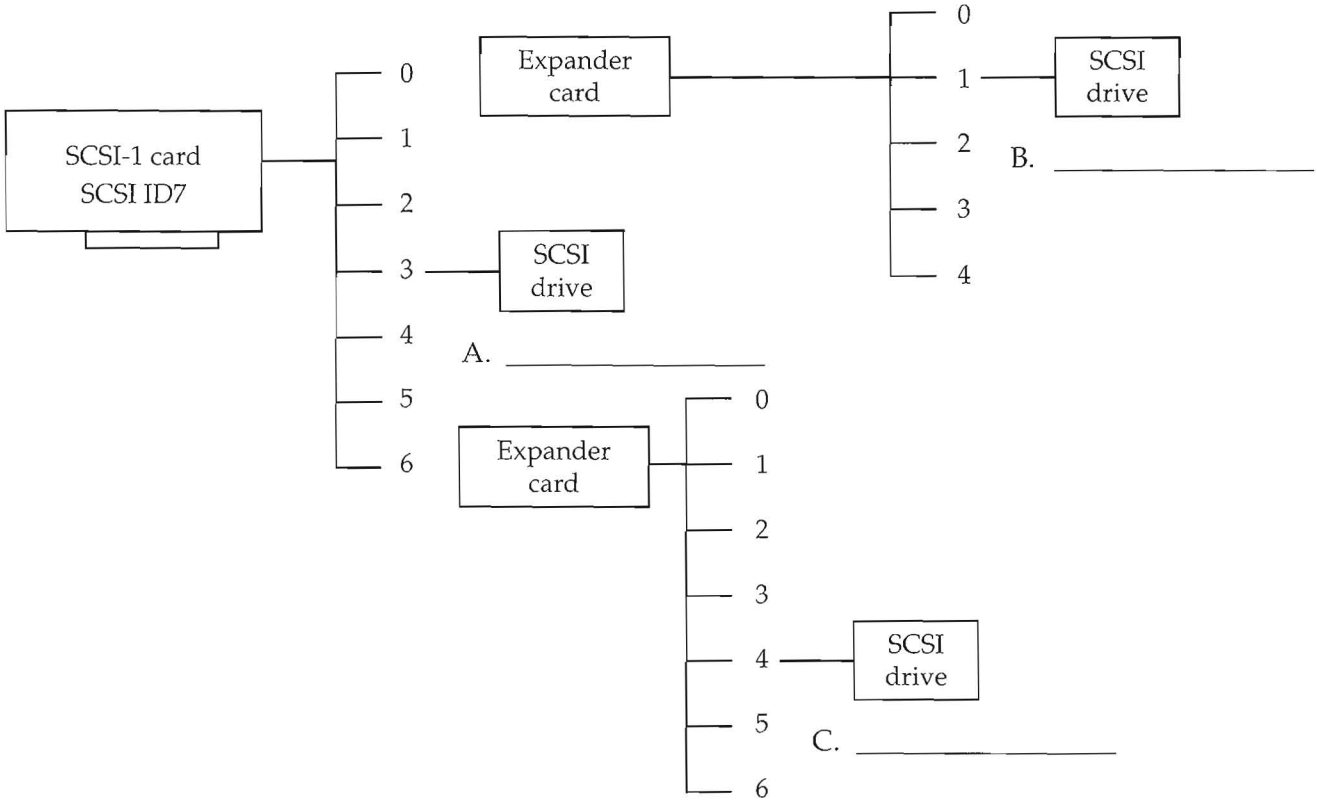
ATA	**IDE**	**SATA**	**SSD**
EIDE	**SAS**	**SCSI**	

1. The earliest standard for the disk drive interface that integrated the controller into the disk drive is _____. 1. _____
2. The _____ standard is an enhanced version of the IDE standard. 2. _____
3. A(n) _____ device uses Flash memory chips in place of disks and discs for storage. 3. _____
4. Hard disk drives that use a master/slave configuration are the _____ and _____ type, also known as ATA. 4. _____
5. ID and LUN numbers are used to identify the devices on a(n) _____ host adapter. 5. _____
6. The _____ standard was developed to overcome the limitations of the ATA drive and uses a flat or round connector with 7 conductors. 6. _____
7. Each _____ connection on a motherboard supports only one hard disk drive. 7. _____
8. Each _____ connection on a motherboard supports two hard disk drives. 8. _____
9. The _____ standard allows 128 devices to be directly attached to a host adapter. 9. _____
10. The _____-7 standard can support a data rate as high as 133 MBps and uses an 80-pin data cable. 10. _____
11. Seven devices can be connected to a(n) _____ host adapter card. 11. _____
12. A _____ II device has a 3 Gbps data transfer rate. 12. _____
13. The _____-3 standard supports a data rate of up to 160 MBps. 13. _____

Name _____

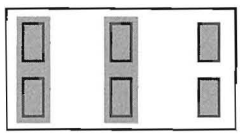
Practice 9.8

Identify the SCSI and LUN number of the following SCSI drives.

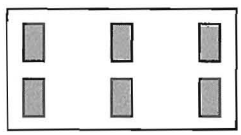


Practice 9.9

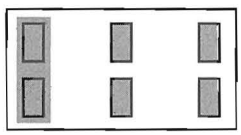
Determine the SCSI number from the following jumper settings.



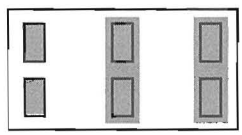
A. _____



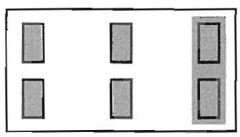
B. _____



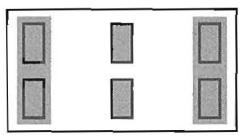
C. _____



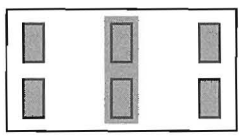
D. _____



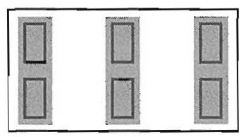
E. _____



F. _____



G. _____



H. _____

Practice 9.10

Identify the storage device for each description. The following terms may be used more than once.

floppy drive	LS-120 drive	tape drive	Zip drive

1. Stores data as a long series of magnetic pulses.	1. _____
2. Uses the multiple zone recording (MZR) technique used on modern hard drives.	2. _____
3. Reads data sequentially.	3. _____
4. Its read/write head is one-tenth the size of that used for a floppy drive, allowing it to write data using 2118 tracks as compared to 135 tracks on a floppy.	4. _____
5. Uses an optical system to guide the read/write into proper alignment each time the disk is run.	5. _____
6. The extra-high density type can store up to 2.88 MB of data.	6. _____
7. Can store up to 120 MB of data.	7. _____