# Chapter 5

# Supporting Hard Drives

## Reviewing the Basics

1. What are the two types of technologies used inside hard drives?

Solid state drives and magnetic drives

2. What are four speeds in revolutions per minute that the spindle inside a hard drive might rotate?

5400, 7200, 10,000, and 15, 000 RPM

3. What is the name of the Windows technology that supports a memory buffer in a hybrid drive?

ReadyDrive

4. When the OS addresses the sectors on a hard drive as one long list of sequential sectors, what is this technology called?

Logical block addressing (LBA)

5. A CD drive that uses a PATA connection must follow what standard?

ATAPI

6. How many pins does an 80-conductor IDE cable have? What is the maximum recommended length of an IDE cable?

40 pins, 18 inches

7. What is the transfer speed of an IDE interface using the ATA-7 standard?

133 MB/sec

8. What is the transfer speed for SATA I? SATA II? SATA III?

1.5 Gb/sec, 3 Gb/sec, 6 Gb/sec

9. How many pins does a SATA data cable have? How many pins does a SATA power cable have?

7 pins, 15 pins

10. What term describes the technology that allows you to exchange a hard drive without powering down the system?

Hot swapping or hot plugging

11. What are the four possible configurations for a PATA drive installed in a system?

Primary IDE channel, master device

Primary IDE channel, slave device

Secondary IDE channel, master device

Secondary IDE channel, slave device

12. Which SCSI ID is assigned to the SCSI host adapter?

SCSI ID 7

13. Which two SCSI connectors might be used with narrow SCSI?

The 50-pin SCSI connector and the 25-pin SCSI connector

14. Which version of SCSI is known as Fast SCSI? Which version is known as Ultra SCSI?

SCSI-2, SCSI-3

15. Which RAID level mirrors one hard drive with a second drive so that the same data is written to both drives?

RAID 1

16. Which RAID level stripes data across multiple drives to improve performance and also provides fault tolerance?

RAID 5

17. How many hard drives does it take to implement RAID 10?

Four

18. How many pins does a floppy drive cable have? What is the storage capacity of a 3½" high-density floppy disk?

34 pins, 1.44MB

19. If a motherboard has one blue IDE connector and one black IDE connection, which do you use to install a single drive?

The blue connection

20. When implementing RAID on a motherboard, where do you enable the feature?

In BIOS setup

## [A HD] Thinking Critically

**1.** You install an IDE hard drive and then turn on the PC for the first time. You access BIOS setup and see that the drive is not recognized. Which of the following do you do next?

a. Turn off the PC, open the case, and verify that memory modules on the motherboard have not become loose.

b. Turn off the PC, open the case, and verify that the data cable and power cable are connected correctly and jumpers on the drive are set correctly.

c. Verify that BIOS autodetection is enabled.

d. Reboot the PC and enter BIOS setup again to see if it now recognizes the drive.

Answer: c. Verify that BIOS autodetection is enabled.

**2.** You want to install a SSD drive in your desktop computer, but the drive is far too narrow to fit snuggly into the bays of your computer case. Which of the following do you do?

a. Install the SSD in a laptop computer.

b. Buy a bay adapter that will allow you to install the narrow drive in a desktop case bay.

c. This SSD is designed for a laptop. Flash BIOS so that your system will support a laptop hard drive.

d. Use a special SATA controller card that will support the narrow hard drive.

**Answer:** b. Buy a bay adapter that will allow you to install the narrow drive in a desktop case bay.

**3.** Mark each statement as true or false:

a. SATA 1 is about ten times faster than IDE ATA/133.

b. SATA 1 is about 100 times faster than IDE ATA/133.

c. RAID 0 can be implemented using only a single hard drive.

d. RAID 5 requires five hard drives working together at the same speed and capacity.

e. You can use an internal SATA data cable with an eSATA port.

f. A SATA data cable has 7 pins.

Answers: a. True, b. False, c. False, d. False, e. False, f. True