PART II

FULL-LENGTH PRACTICE TESTS

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Answer Sheets for Practice Test 1

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Section 1
Multiple Choice Questions

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A+ Essentials

Practice Test 1

Directions: For each of the following questions, select the choice that best answers the question or completes the statement.

1. Which of the following choices is part of the definition of a personal computer?

A. A device that is not usable by itself
B. A device whose only function is to access a group computer
C. A device made up of distinct components that all function together
D. A device that can be carried in a pocket for mobile use

2. Which of the following is not a common component found on a motherboard?

A. CPU
B. HDD
C. RAM
D. BIOS

3. Which of the following motherboard form factors is not a standard?

A. ATX
B. microATX
C. BTX
D. LPX

4. Which of the following motherboard form factors uses a riser card?

A. BTX
B. ATX
C. LPX
D. microATX

5. All of the following statements about chipsets are true *except*:

A. By definition, a chipset is always made up of two or more chips and related circuitry.
B. Chipset functionality is divided into Northbridge and Southbridge.
C. The same manufacturer creates all chips in a chipset.
D. A chipset assists the CPU in its interface and peripheral functions.

6. Which of the following is the pathway over which communication between the processor and memory occurs?

A. Northbridge
B. Southbridge
C. Frontside bus
D. Backside bus

7. All of the following are expansion slots *except*:

A. ISA
B. PCI
C. AGP
D. IDE

8. What is the primary function of an expansion card inserted in an AGP slot?

A. NIC
B. FireWire
C. Video
D. Audio

9. Which of the following slots is the longest?

A. 1X PCIe
B. AGP
C. CNR
D. PCI

10. Memory slots on a motherboard are for

A. Memory modules
B. Memory chips
C. Insertion of the CPU to gain access to the system memory
D. Cables that connect from the memory to the CPU

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11. Which of the following is *not* a common pin count for DIMMs?

- **A.** 168
- **B.** 184
- **C.** 196
- **D.** 240

12. Which of the following statements regarding cache memory is true?

- **A.** Because cache stores what the CPU uses, there must be at least 10 times more cache than RAM.
- **B.** Because cache is placed closer to the CPU than RAM is, cache can be made slower than RAM.
- **C.** SDRAM is used for cache because of its speed.
- **D.** Cache is used to store what the CPU has needed from RAM most recently and what the cache controller predicts is needed next.

13. Which of the following CPU/socket pairings is incorrect?

- **A.** Pentium 200MHz: Socket 7
- **B.** Pentium II: Socket 1
- **C.** Pentium 4: Socket 478
- **D.** Itanium: PAC418

14. Which of the following statements about onboard drive interfaces is true?

- **A.** *Onboard* refers to the fact that the controller electronics are built into the hard drive.
- **B.** Black 40-pin connectors are for PATA, and blue 40-pin connectors are for SATA.
- **C.** SATA connectors have more pins than FDD connectors.
- **D.** The technology behind the interface could be ATA or SCSI.

15. When you remove the cover of your computer's case, you find that your video interface is attached to the motherboard without a cable. What is this method of attachment called?

- **A.** Header connection
- **B.** Perma-mount
- **C.** Direct-solder
- **D.** Fixed attachment

16. All of the following statements about the BIOS are true *except*:

- **A.** If the BIOS does not know about a piece of hardware, the operating system will likely require a device driver for the hardware.
- **B.** The BIOS is generally implemented as a removable chip or a flashable component.
- **C.** The BIOS is responsible for the primary POST process.
- **D.** Once the BIOS passes control to the operating system, it essentially goes to sleep until the next boot.

17. What is the term for Intel's technology that allows a single processor to appear to be two processors to the operating system?

- **A.** Hyperthreading
- **B.** Symmetric multiprocessing
- **C.** Split microcode
- **D.** Dual processing

18. Which of the following is an accurate representation of microcode?

- **A.** A microcode instruction is an application instruction that is half the length of a normal application instruction.
- **B.** Programmers can write applications with smaller file sizes by using microcode.
- **C.** Microcode is the trade name for all instructions in software written by Microsoft.
- **D.** One instruction in the code of an application may result in multiple microcode instructions.

19. Which of the following best describes parity checking?

- **A.** An error-checking scheme for RAM
- **B.** An error-checking and -correction scheme for RAM
- **C.** Matching colors between the monitor and the printer
- **D.** Matching the configured borders to those of the printed page

20. All of the following are differences between DRAM and SRAM *except*:

A. SRAM is generally more expensive per quantity than DRAM.
B. SRAM is generally faster and more responsive than DRAM.
C. SRAM requires periodic refreshing, and DRAM does not.
D. SRAM is generally used for cache, whereas DRAM is used for standard RAM.

21. All of the following statements about DDR2 SDRAM are accurate *except*:

A. DDR2 suffers from more latency than does DDR.
B. The chips on the DDR2 module are named based on the perceived clock rate.
C. DDR2 generates more heat than DDR because it is twice as fast and uses the same voltage.
D. The throughput of DDR is four times that of SDR SDRAM at the same clock rate.

22. Which of the following statements about primary memory modules is *not* true?

A. If you use memory rated at a frequency that is lower than that of the FSB, performance will be suboptimal.
B. Double-sided memory modules are required to satisfy two banks at a time.
C. A SIMM and a DIMM are not interchangeable.
D. When upgrading memory, you must satisfy entire banks at a time.

23. Which of the following statements about SoDIMMs and MicroDIMMs is *not* true?

A. MicroDIMMs are smaller but plug into the same slots.
B. They are used in small-scale applications, such as for laptops.
C. Both come in a 144-pin version.
D. Both come in a 64-bit version.

24. Which of the following statements about CD-ROM drives and discs is true?

A. A standard CD-ROM disc can hold up to 4.7GB of data.
B. The original CD-ROM drives transferred data at a rate of 150KBps.
C. A 52X CD-ROM drive spins the disc 52 times faster than the original drives.
D. With the proper software, you can burn data to a CD-ROM disc.

25. Which of the following is *not* a memory card format?

A. MicroCard
B. SD
C. SmartMedia
D. Memory Stick

26. Which of the following items is *not* commonly found on an external USB-attached hard disk drive?

A. A place to insert disks
B. A Type-B USB interface
C. A DC power input
D. A power switch

27. How are power supplies rated for comparison of load capacity?

A. Ohms
B. Amps
C. Watts
D. Volts

28. All of the following apply to AT system connectors, *except*:

A. There are two connectors with five pins each.
B. The connectors are known as P8 and P9.
C. When inserting the connectors into the motherboard, you must take care to place grounds adjacent to each other.
D. The connectors are keyed to prevent flipping them 180 degrees.

29. Which of the following is the least amount of video memory listed that is capable of supporting 1024 × 768 resolution using 32-bit color?

A. 1MB
B. 2MB
C. 4MB
D. 16MB

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30. Which of the following video technologies offers the highest quality?

- **A.** S-video
- **B.** Composite video
- **C.** Component video
- **D.** EGA

31. Which adapter card is most likely to have an empty ROM socket and a modular connector?

- **A.** Video
- **B.** Sound
- **C.** NIC
- **D.** Super I/O

32. All of the following statements about USB are true *except*:

- **A.** USB 1.1 supports data rates of up to 12MBps.
- **B.** USB 2.0 supports data rates of up to 60MBps.
- **C.** USB 2.0 requires better shielding for its cables.
- **D.** USB 1.1 and 2.0 connectors are identical.

33. What is historically the most common use for a Centronics connector?

- **A.** Networking
- **B.** Video
- **C.** Sound
- **D.** Printer

34. With USB cabling, all of the following statements help you to know the type of connector a device is likely to require *except*:

- **A.** Type B connectors face the component.
- **B.** For ease of connectivity, as well as plug-and-play support, USB cables have the same type of connector on each end of the cable.
- **C.** USB hubs appear to be the system to the component and appear to be the component to the system.
- **D.** Type A connectors face the system.

35. What normally happens when the lower temperature threshold set in the BIOS routine for the CPU is reached?

- **A.** The system shuts down to prevent damage to components.
- **B.** The operating system goes into standby mode to avoid damage to components.
- **C.** An alarm sounds, indicating that the CPU and surrounding components are in imminent danger.
- **D.** The system administrator is paged, and an e-mail is sent.

36. Which of the following is true regarding modern UltraDMA drives?

- **A.** Due to interference caused by the additional 40 wires of an 80-wire cable, performance is increased by using a standard 40-wire cable.
- **B.** These drives do not require master/slave designations.
- **C.** They cannot be used when standard IDE devices are installed.
- **D.** The BIOS should not be configured for DMA or PIO when using these drives.

37. All of the following are considerations with SCSI *except*:

- **A.** One device must be set as master. All others must be set as slaves.
- **B.** Each device on the bus must have a unique configurable address.
- **C.** Two devices must be terminated.
- **D.** In certain cases, active termination is preferred or required over passive termination.

38. Which of the following statements about SCSI is *not* true?

- **A.** The lower the address, the higher the device's priority on the bus.
- **B.** If you have a bus with 8 addresses, you can chain a maximum of 4 such buses to obtain 32 addresses.
- **C.** It is common practice that the primary hard disk be set to address 0.
- **D.** A SCSI hard drive's onboard BIOS is required for booting to the disk.

39. In attempting to take the front faceplate off of a computer, you meet with considerable resistance. What should you do?

- **A.** Using a flat-blade screwdriver, gently pry the faceplate from the chassis.
- **B.** Turn off the computer's power, and the faceplate latch will release automatically.
- **C.** Faceplates cannot be removed from the chassis.
- **D.** Remove the case cover, and look for one or more screws in the chassis that are holding the faceplate in place.

40. When using compressed air, all of the following are considerations *except*:

- **A.** Compressed air is usually impure and can leave heavy deposits on electronic components.
- **B.** Inverting the can may blow refrigerant onto the components.
- **C.** Canned compressed air can be expensive.
- **D.** When used in the wrong environment, compressed air can cause dust to enter ventilation systems and contaminate other computers.

41. What is one of the primary differences between measuring current and voltage with a multimeter?

- **A.** The positive and negative probes must be reversed with respect to one another.
- **B.** You cannot measure both with the same type of multimeter.
- **C.** To measure voltage, you must place the multimeter in series with the circuit. Current is measured in parallel.
- **D.** To measure current, you must place the multimeter in series with the circuit. Voltage is measured in parallel.

42. When troubleshooting, which of the following statements best describes how to handle testing multiple solutions?

- **A.** Because there may be multiple issues causing the problem, try all combinations of potential solutions simultaneously until the problem is resolved.
- **B.** If an attempt at a remedy does not resolve the problem, revert to the previous state before trying anything else.
- **C.** Because the customer is most familiar with the symptoms of the problem, present options and their expected outcomes so that the customer can suggest where to start.
- **D.** Implement all possible solutions to the particular problem and then back them out, one by one, until the problem reoccurs. Add the solution back, and remove all other attempted fixes.

43. All of the following are examples of common causes of motherboard damage *except*:

- **A.** Physical trauma
- **B.** Short circuiting
- **C.** ESD
- **D.** Overheating

44. Which of the following options results in the most cost-effective solution for a standard keyboard with sticking keys?

- **A.** Purchase the most inexpensive keyboard cleaning solvent, and meticulously clean the component.
- **B.** Submerge the entire keyboard in clean water for 30 minutes, scrub the crevices, submerge it again, and then let it air dry.
- **C.** Remove the keys and soak them in water, and use an alcohol-dipped swab to clean all other areas.
- **D.** Purchase a new keyboard.

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45. What is the term that refers to the repeated heating and cooling of internal components, causing them to become unseated over time and lead to intermittent failures?

- **A.** Convection reaction
- **B.** Card wander
- **C.** Chip creep
- **D.** Heat cycling

46. Which of the following is one of the biggest differences between laptop and desktop computers?

- **A.** Similar internal components function differently.
- **B.** Laptops have increased heat production.
- **C.** External components connect differently.
- **D.** Laptops are considerably less expensive to produce.

47. What is a micro-FCBGA?

- **A.** A miniaturized video standard
- **B.** A motherboard form factor
- **C.** A processor form factor and attachment standard
- **D.** A laptop computer model

48. Which of the following statements is true?

- **A.** All laptops have an internal floppy drive.
- **B.** Some laptops have a universal drive bay that accepts a floppy drive or a CD/DVD drive.
- **C.** All laptops have an internal CD or DVD drive.
- **D.** All laptops have a connector for external floppy attachment.

49. With respect to the keyboard on a laptop, which of the following statements is most likely true?

- **A.** The key layout and size of the keys and keyboard are similar to those of a standard keyboard.
- **B.** A special key needs to be held down while another key is pressed to access certain functions that have their own key on a standard keyboard.
- **C.** Because the keys on a laptop keyboard are smaller, all the standard keys are present, in addition to special keys.
- **D.** The functionality of a laptop keyboard is highly inferior to that of a standard keyboard.

50. Which PC Card type is most commonly used for modems and LAN adapters?

- **A.** Type I.
- **B.** Type II.
- **C.** Type III.
- **D.** These devices cannot be implemented on PC Cards.

51. Which of the following is *not* a form of communication connectivity commonly found on laptops?

- **A.** Cellular
- **B.** Microwave
- **C.** Infrared
- **D.** Bluetooth

52. What is the name of the specification that hands control over power management to the operating system?

- **A.** SoftPower
- **B.** APC
- **C.** WinPower
- **D.** ACPI

53. Which of the following is likely to be the most commonly removed or inserted internal laptop component, often involving removing one or more screws?

- **A.** Hard drive
- **B.** Memory
- **C.** Sound card
- **D.** CD/DVD drive

54. All of the following statements about video troubleshooting on laptops are legitimate *except*:

- **A.** Check the brightness level on the internal display, just as you would on an external monitor.
- **B.** Make sure to check all three modes: LCD only, external only, and both, before assuming the internal display is bad.
- **C.** If the laptop has a backlight feature, try to turn it on, especially in dim environments.
- **D.** If neither the internal display nor an external monitor works, replacing the internal display should fix both problems.

55. Which of the following is the fundamentally most important type of software on a computer?

- **A.** Word processor
- **B.** E-mail and messaging
- **C.** Payroll and financial
- **D.** Operating system

56. What is the meaning of the term *shell* with respect to operating systems?

- **A.** A front for an application to distract hackers and make it harder to gain access.
- **B.** A program that runs on top of the operating system to provide a custom or friendlier interface that the operating system does not provide.
- **C.** A fragile application that collapses frequently, leaving a mess for the operating system to clean up.
- **D.** A portal from one application, through the operating system, to another application.

57. All of the following are operating systems in a rivalry with Windows *except*:

- **A.** Mac OS X
- **B.** Unix
- **C.** Datacenter
- **D.** Linux

58. Which of the following represent the recommended RAM and available hard disk space, respectively, to run Red Hat Linux 8.0 Professional?

- **A.** 192MB; 4.5GB
- **B.** 256MB; 4GB
- **C.** 128MB; 3.5GB
- **D.** 384MB; 5.25GB

59. What does an arrow to the right of an item in the Start menu represent?

- **A.** Clicking the item launches a separate application.
- **B.** Double-clicking the item attempts to link to a related web page.
- **C.** The item has a submenu that is displayed by hovering over the item.
- **D.** Help for the item is launched.

60. Looking through the items in the All Programs list in XP, you notice that a couple of them appear to be highlighted. What does this mean?

- **A.** They are newly installed.
- **B.** Windows will archive these items in less than 24 hours.
- **C.** The items are not fully Windows-compatible. You should use caution when executing these items.
- **D.** The software publishers paid advertising dollars to Microsoft to have their products highlighted in Windows.

61. You delete an icon with an arrow in the bottom-left corner from your Desktop. Which of the following statements is most accurate?

- **A.** The icon was a shortcut to the actual program, which is untouched and remains executable.
- **B.** The icon was a shortcut to the actual program, which is deleted as well.
- **C.** The icon was the actual executable, which is now completely removed from the hard drive.
- **D.** Deleting the icon partially removed the related application from the hard drive, making it difficult to properly remove the remainder.

62. All of the following statements about the Recycle Bin are true *except*:

- **A.** The icon of an empty Recycle Bin differs from that of a Recycle Bin with something in it.
- **B.** Any file or folder deleted from any location is sent to the Recycle Bin.
- **C.** The Recycle Bin holds deleted files from the hard disk so they can be restored if necessary.
- **D.** Items in the Recycle Bin can be restored until the Recycle Bin is emptied.

63. Which one of the following methods does *not* close an open window?

- **A.** Double-click the Control box in the upper-left corner of the window.
- **B.** Click the X button in the upper-right corner of the window.
- **C.** Double-click the title bar.
- **D.** Press Alt-F4 while the window is active.

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64. Double-clicking which of the following icons in Control Panel has the same effect as right-clicking My Computer and then clicking Properties?

A. System
B. Network Connections
C. Display
D. Taskbar and Start Menu

65. Which of the following methods leads to being able to change the name by which a computer is known on the network?

A. Click the Change button in the Computer Name page of System Properties.
B. Right-click My Computer, and click Rename.
C. Click My Computer, wait a couple of seconds, click My Computer again, enter the new name, and press Enter.
D. In Device Manager, right-click the computer name at the top of the tree, and click Rename.

66. Under which tab in System Properties do you change virtual memory settings, adjust how resources are allocated to the processor, configure user profiles, and adjust startup and recovery settings?

A. System Restore
B. General
C. Hardware
D. Advanced

67. When a user attempts to invite you to provide remote assistance, the following message pops up: "Your current system settings prevent you from sending an invitation." What should you have the user do to enable this capability?

A. Use the original XP distribution disc to install this feature.
B. Download this feature for free from Microsoft's website.
C. This is a third-party utility that must be purchased from the publisher.
D. Check the box in the Remote Assistance section under the Remote page in System Properties.

68. Which pair of terms is used most often when discussing the Registry?

A. Tree; branch
B. Hive; key
C. Record; field
D. Parent; child

69. Which of the following best describes virtual memory?

A. Using an Internet service as a network share to augment local disk storage
B. Using RAM to create a RAM drive
C. The operating system's technique of stacking two bits in locations that normally store only one
D. The use of the hard drive to supplement RAM

70. Which of the following describes the `NTLDR` system file?

A. Starts the loading of the operating system
B. A text file that points to the partitions where one or more operating systems are installed
C. The core of the operating system that must remain loaded at all times, never being paged to disk
D. Parses the system for current configuration information as the operating system starts, and creates the dynamic portion of the Registry

71. Which of the following describes the `NTDETECT.COM` system file?

A. Starts the loading of the operating system
B. A text file that points to the partitions where one or more operating systems are installed
C. The core of the operating system that must remain loaded at all times, never being paged to disk
D. Parses the system for current configuration information as the operating system starts and creates the dynamic portion of the Registry

72. What can be found on a memory module?

A. Other memory modules
B. Cable headers
C. Memory chips
D. Firmware

73. Which one of the following is *not* a difference between primary and extended partitions?

A. You can assign multiple drive letters to an extended partition but only one to a primary partition.
B. Only primary partitions can be made active and used for booting.
C. Generally speaking, a single physical drive can have more primary partitions than extended partitions.
D. You can assign a single drive letter to a primary partition, but an extended partition requires multiple drive letters.

74. Which of the following is the primary method for a Microsoft operating system to track the purpose of a file?

A. A specific extension is added to the file's name.
B. The icon assigned to the file denotes its purpose.
C. All files of a specific purpose are grouped together in the same folder.
D. Windows writes a header to the beginning of each file, tracking its purpose and other variable information.

75. Which of the following is recommended by Microsoft to be higher for the installation of Windows 2000 Professional than for the installation of Windows XP Professional?

A. Memory
B. Free hard disk space
C. Processor model
D. Video standard

76. What is an unattended installation?

A. An installation where a Windows expert talks a novice through the installation process remotely
B. An installation that is pushed to the computer from an SMS server
C. An installation that uses an answer file so that no human intervention is required
D. A direct image copy using only Sysprep

77. After you install Windows XP, what must be done within 30 days in order to continue using it?

A. You must fill out the warranty registration card and send it in to Microsoft with the original UPC symbol.
B. You must install SP2 and all patches up to a minimum level to avoid contamination from the Internet, or your system will disable itself for protection.
C. XP must be activated online or by phone with Microsoft.
D. You must reboot the system at least once.

78. From which of the following operating systems must you run `WINNT.EXE` and not `WINNT32.EXE` to perform a clean Windows XP installation?

A. Windows 3.1
B. Windows 98
C. Windows 95
D. Windows Me

79. All of the following are reasons to use Task Manager *except*:

A. Stopping an unresponsive application
B. Finding out how much your hard drives are fragmented
C. Finding out which processes are using the CPU the most
D. Finding out how much memory and virtual memory is being used

80. Which function key, when pressed at the appropriate time during boot-up, presents you with advanced startup options?

A. F1
B. F5
C. F8
D. F12

81. What is the term that refers to the frequent disk access, which is accompanied by degraded system performance and that is caused by a full or corrupt swap file?

A. Foundering
B. Thunking
C. Thrashing
D. Battering

GO ON TO THE NEXT PAGE

82. All of the following are functions of a printer driver *except*:

- **A.** Uses a page-description language to convert print jobs into a format for the printer
- **B.** Ensures that the printer is ready to print
- **C.** Changes the way on-screen documents appear once the output device is selected
- **D.** Sends information to the printer

83. How does the writing step in the EP print process place the image on the photosensitive drum?

- **A.** Light reflects off of the original image in varying intensities onto the drum.
- **B.** A corona wire scribes the image onto the drum.
- **C.** Electrodes inside the drum create the image through the wall of the drum.
- **D.** The uniform −600VDC charge is reduced to −100VDC wherever the image lies.

84. All of the following are printer communication methods *except*:

- **A.** IEEE 1284
- **B.** IEEE 802.11
- **C.** IEEE 1394
- **D.** IEEE 802.1D

85. All of the following components are part of the scanning head of a scanner *except*:

- **A.** CCD or CIS
- **B.** Light source
- **C.** Stepper motor
- **D.** Mirrors

86. When working with printers and scanners, what term refers to synchronizing the device's perception with its results?

- **A.** Regulation
- **B.** Adjustment
- **C.** Tuning
- **D.** Calibration

87. While troubleshooting a paper-feed jam problem with a page printer, you confirm that the drive gear is operating smoothly, but jams still occur regularly. Which of the following is another possible problem that can cause paper-feed jams?

- **A.** Worn feed rollers
- **B.** Worn exit rollers
- **C.** Damaged drum
- **D.** Dry paper

88. All of the following are possible solutions when a scanner fails to scan *except*:

- **A.** Reposition the object being scanned.
- **B.** Check the scanning-head lock.
- **C.** Check the power.
- **D.** Do nothing, and try again.

89. In which type of network do devices request and offer services simultaneously, with no devices defined for specialized access from others?

- **A.** Nondedicated network
- **B.** Peer-to-peer network
- **C.** Client-server network
- **D.** Local area network

90. Which IEEE working group specifies the media access method for Ethernet, and what is the media access method called?

- **A.** 802.3; CSMA/CD
- **B.** 802.5; token-passing ring
- **C.** 802.1; CSMA/CA
- **D.** 802.11; wireless networks

91. Which of the following protocols is *not* routable?

- **A.** IP
- **B.** IPX
- **C.** AppleTalk (DDP)
- **D.** NetBEUI

92. How many bits make up a complete IPX address?

- **A.** 32
- **B.** 48
- **C.** 64
- **D.** 80

93. Which class of IP addresses can be identified by a first-octet value ranging from 192 to 223?

A. Class A
B. Class B
C. Class C
D. Class D

94. Cat-*x* is a common reference used for what type of transmission medium?

A. Coaxial
B. Twisted pair
C. Fiber
D. Wireless

95. Among the following, which is the slowest Internet connection?

A. POTS
B. ISDN
C. DSL
D. DOCSIS (cable)

96. How does full-duplex transmission differ from half-duplex?

A. Full-duplex requires more cabling than half-duplex.
B. With full-duplex, transmission can occur in only one direction for full use of the bandwidth by one device.
C. With full-duplex, transmission can occur in both directions, but in only one direction at a time.
D. With full-duplex, transmission can occur in both directions simultaneously.

97. How does a worm differ from a virus?

A. A worm is self-contained and can reproduce itself. A virus relies on a host application and spreads through human interaction.
B. A virus is harmless, and a worm is destructive.
C. A worm burrows deeper into an application than a virus does.
D. Only viruses affect personal computer workstations. Worms affect larger systems, including some personal computer–based servers.

98. Which of the following terms is *not* directly related to wireless security?

A. WTLS
B. WLAN
C. WEP
D. WPA

99. All of the following are sound environmental considerations for a computer *except*:

A. Cover open slots in the back of the chassis with blank brackets.
B. Do not expose the computer to harmful fumes or substances, especially anything airborne that can leave a residue.
C. In less acceptable environments, place the computer in an airtight enclosure to avoid contaminants.
D. Use your own tolerance to temperature extremes to gauge if the computer should be exposed to a given temperature or climate.

100. If a customer accuses you of being the source of the problem, which of the following is the best course of action?

A. Protect your company at all costs. The company is your bread and butter and must not come into question.
B. Without actually accusing the customer of any wrongdoing before it is proven, attempt to equalize the situation by getting the customer to take some of the blame as well.
C. Keep your cool and do not take things personally. The customer is reacting to a stressful situation.
D. Escalate the incident to someone that can handle the abuse.

Answer Key for Practice Test 1

1. C
2. B
3. D
4. C
5. A
6. C
7. D
8. C
9. D
10. A
11. C
12. D
13. B
14. D
15. C
16. D
17. A
18. D
19. A
20. C
21. C
22. B
23. A
24. B
25. A
26. A
27. C
28. A
29. C
30. C
31. C
32. A
33. D
34. B
35. C
36. D
37. A
38. B
39. D
40. A
41. D
42. B
43. D
44. D
45. C
46. B
47. C
48. B
49. B
50. B
51. B
52. D
53. B
54. D
55. D
56. B
57. C
58. A
59. C
60. A
61. A
62. B
63. C
64. A
65. A
66. D
67. D
68. B
69. D
70. A
71. D
72. C
73. D
74. A
75. B
76. C
77. C
78. A
79. B
80. C
81. C
82. C
83. D
84. D
85. C
86. D
87. A
88. A
89. B
90. A
91. D
92. D
93. C
94. B
95. A
96. D
97. A
98. B
99. C
100. C

Answer Explanations for Practice Test 1

1. **C.** A personal computer is a self-contained stand-alone device that can be connected to others but promotes productivity on its own as well. Some mobile devices can be classified as personal computers, but this group is too narrow to define all personal computers.
2. **B.** The hard disk drive is not attached to the motherboard but is mounted in a drive bay and cabled to most motherboards.
3. **D.** The LPX form factor was popular in its day but was never standardized, leading to compatibility issues.
4. **C.** The low-profile form factors, LPX and NLX, use risers so that their expansion cards can be mounted parallel with the motherboard, allowing for a case of more diminutive height.
5. **A.** A chipset, despite the implication, could be a single chip.
6. **C.** The frontside bus is the data pathway that joins the CPU, the Northbridge, and SDRAM, if used.
7. **D.** IDE is the popular term for ATA, a drive interface that often appears on the motherboard for cabling to off-board drives but is not used for the connection of expansion cards.
8. **C.** Accelerated Graphics Port was created primarily for use with video adapters to answer the need for high-speed video to keep up with faster computers and more demanding software.
9. **D.** PCI slots are the longest of those listed. Although PCIe slots can be longer, the 1X slot is very short.
10. **A.** Slots receive modules. Chips mount in sockets. Today's motherboards have abandoned memory sockets in favor of slots for modules of primary RAM.
11. **C.** SDRAM DIMMs have 168 pins. DDR DIMMs have 184 pins, and DDR2 DIMMs have 240 pins.
12. **D.** The cache controller pre-fetches data and instructions that it predicts the CPU will need. For this reason, a very small amount of cache is required for proper performance and extremely high hit rates. Cache is usually forged from SRAM, not slower SDRAM. Regardless of proximity to the CPU, slower memory would not be an improvement over standard RAM alone.
13. **B.** The Pentium II uses Slot 1, not Socket 1.
14. **D.** Onboard drive interfaces are ATA or SCSI interfaces built right the motherboard. Integrated Drive Electronics (IDE) places controller electronics on the drive. SATA has its own small connectors with fewer pins than a 34-pin floppy connector, 7 pins for the data connector and 15 pins for the power connector. Forty-pin connectors are for PATA only.
15. **C.** The direct-solder method attaches interfaces to the motherboard, along with supporting circuitry, so that fewer expansion cards and less cabling are necessary.
16. **D.** The BIOS is active as long as the machine is running. It must be able to accept interrupts from the operating system and communicate with hardware as a liaison for the operating system. Today's BIOS also handles power management, hot swapping, and thermal management after boot. This is so important that part of the BIOS is often loaded into RAM to speed up access to BIOS routines throughout your session.
17. **A.** Hyperthreading-capable processors appear to the operating system to be two processors. The operating system can schedule two processes at the same time, as in the case of symmetric multiprocessing (SMP), where two or more processors use the same system resources. The operating system must support SMP in order to take advantage of hyperthreading.
18. **D.** Microcode is the programming language that the CPU understands and operates on. All high-level application and operating-system instructions must eventually be broken down into microcode for the CPU to process. A single high-level instruction is typically broken down into several microcode instructions.
19. **A.** Parity is an error checking scheme only. The memory subsystem uses parity in some computers to make sure that data and instructions are not compromised as they travel along the frontside bus. There is not enough error information included in parity checking to allow even one-bit error correction.

20. **C.** Quite the opposite. DRAM requires frequent refreshing, or it loses its contents, much like a battery eventually loses its ability to power devices. SRAM is built in such a way that the presence of power allows it to keep its own contents fresh without a refresh cycle.

21. **C.** In order to reduce the heat output of DDR2, a lower voltage is used compared to that of DDR.

22. **B.** Double-sided modules have chips on both sides to offer more RAM per module, but the module satisfies the same bit width as a single-sided module.

23. **A.** The edge form-factors are different between SoDIMMs and MicroDIMMs and are not interchangeable.

24. **B.** A standard CD-ROM holds upwards of 640MB of data, nowhere near the 4.7GB of DVD-ROM. Although 52X denotes that these drives have a transfer rate 52 times that of the original 1X CD-ROM drives, techniques other than spin speed have had to be employed after a certain point. Only CD-R and CD-RW discs can be burned, not CD-ROM discs.

25. **A.** MicroCard is not an actual memory card format, although there is a new version of MMC known as MMCmicro Card as well as other "micro" formats.

26. **A.** Just like standard internal hard drives, no disk insertion is necessary or possible. External drive enclosures contain a standard internal hard disk drive.

27. **C.** Power supplies are rated by watts, the unit of measure for power. Power supplies are commonly in the 250W to 500W range, denoting how much the computer and its internal peripherals (and external peripherals, if devices such as a monitor are connected directly to the power supply externally) can draw from the power supply before issues arise.

28. **A.** The P8 and P9 connectors each have 6 pins and must be inserted with black ground wires together in the middle. Although P8 and P9 can be swapped, resulting in black not being together in the middle, these connectors are keyed so that you cannot turn them around on the same connector.

29. **C.** There are $1024 \times 768 = 786{,}432$ pixels at this resolution. Each pixel requires 32 bits, so $786{,}432 \times 32 = 25{,}165{,}824$ bits are required for 32-bit color, which provides a palette of over 4 billion colors per pixel. Dividing the number of bits by 8 reveals the number of bytes required for such color at this resolution: $25{,}165{,}824 \div 8 = 3{,}145{,}728$ bytes. 1MB is equivalent to 1,048,576 bytes, so there are $3{,}145{,}728 \div 1{,}048{,}576 = 3$MB of required video memory, making 1MB and 2MB insufficient for displaying this resolution. Of the choices offered, 4MB is the least amount of video memory that meets the stated requirements.

30. **C.** EGA is an older lower-resolution digital technology with a resolution of 640 × 350. The other three options are all analog NTSC baseband signal interfaces with resolutions as high as 650 × 480. Given that all three analog technologies are operating at this resolution, they have the potential to produce higher-quality output than does EGA. Composite, S-video, and component use different encoding techniques, using 1, 2, and 3 wires with increasing quality, respectively, meaning component video delivers the highest resolution at the highest quality.

31. **C.** Ethernet NICs can use 8-pin modular connectors for twisted-pair cabling, and they have a socket that can accept a boot-ROM to allow booting from the network.

32. **A.** USB 1.1 supports data rates of only 1.5MBps, which equates to 12Mbps, not 12MBps. USB 2.0 cables have far more shielding than those used with 1.1 but are backward compatible. The standard connectors have not changed across the versions of the specification.

33. **D.** Among these items, only printers ever used Centronics connectors.

34. **B.** Only extension cables have the same type of connector at both ends. Standard USB cables have a Type A connector at one end and a Type B connector at the other end.

35. **C.** When the first temperature threshold is reached, generally, the computer continues to operate but alerts you to the event. When the next threshold is reached, the computer shuts itself down to avoid damage.

36. **D.** UDMA drives operate in a similar fashion to standard ATA hard drives, but they benefit from the grounding of the 80-wire cables, which allow these drives to operate at their full potential. The BIOS should not be configured for DMA or PIO when using UDMA drives, however.

37. **A.** SCSI does not use master/slave for multiple drives on the same controller. It uses a series of 8 or 16 addresses. Devices at the physical ends of the chain must be terminated. Active termination uses voltage regulators inside the terminator. Use active termination whenever you have fast, wide, or Ultra SCSI devices on the chain and/or more than two SCSI devices on the chain.

38. **B.** Every SCSI chain is independent and unable to be expanded.

39. **D.** Most faceplates are removable for access to wiring, LEDs, and other components built into the faceplate. Never pry a faceplate from the chassis.

40. **A.** Canned compressed air is quite pure but not cheap when compared with air from a mechanical compressor. The can should not be inverted during use, and care should be taken to avoid spreading dust indoors and onto other components.

41. **D.** With a multimeter, by definition, you can measure voltage, current, and resistance. When dealing with alternating current, the positive and negative probes are always oriented the same, regardless of what you are measuring. Voltage is measured with the circuitry intact, whereas current must be measured inline with the circuitry; you must often detach components to do so.

42. **B.** The rule of thumb here is to change one thing at a time. If it doesn't work, you may have inadvertently created a new problem that will mask your solving the original problem. Put things back the way they were before you try anything else. Although it's true that more than one thing can be wrong, generally, multiple problems cause different symptoms. It is rare to find two problems manifesting the same symptom. Operate on one symptom at a time.

43. **D.** Although overheating causes damage to the CPU, which resides on the motherboard, damage to the motherboard itself from overheating is not common.

44. **D.** Keyboards are cheap. Replace a keyboard before spending valuable hours trying to repair one. Even a partial hour's worth of repair time can cost more than the price of a new keyboard. The customer will likely be happier with the new keyboard as well. Keyboards take a lot of abuse, and replacing them from time to time is part of the cost of computer ownership.

45. **C.** As campy as it sounds, *chip creep* is a longstanding industry term that refers to the gradual ejection of a chip from its socket due to frequent cycles of alternating heating and cooling.

46. **B.** Heat production is one of the biggest challenges facing laptop manufacturers, keeping performance of laptops slightly behind that of desktop computers and contributing to the higher cost of producing laptops. Standard external device connectivity is no different between laptops and desktops, nor is the functionality of internal components designed for the same purpose. Everything is a bit smaller and closer together, another factor contributing to increased cost of laptop production.

47. **C.** The Flip Chip Ball Grid Array (FCBGA) standard uses balls instead of pins for attachment to the motherboard, resulting in less area required over CPUs that employ pins for attachment. The FCBGA form factor is ideal for use in laptops.

48. **B.** Blanket statements can often be ruled out. Many laptops offer a universal bay for attachment of various drives and extra batteries.

49. **B.** It is true that the keys on a laptop keyboard are usually smaller than those on a full-size keyboard, but they must fit in a smaller space, so there is rarely room to reproduce the full-size keyboard on the laptop. However, key functions that are not represented directly are often reproduced as alternative functions on other keys. To access these alternative functions, you most often need to hold down a complementary key, such as Ctrl, Space, or a special function key (sometimes labeled *Fn*) while pressing the key on which the alternative function is labeled.

50. **B.** The Type II PC Card is by far the most popular implementation overall and the one used for these expansion cards.

51. **B.** Microwave is not a small-scale communications medium. Large antennae and repeaters must be set up to produce a highly dedicated communications network. Little difference exists with cellular technology, except for the size of the end devices and the commercial popularity of the network infrastructure. More and more cellular attachments and built-in components are making their way to laptops. Infrared and Bluetooth are two technologies designed for very short-range cord and cable replacement and thus are popular in the laptop arena.

52. **D.** Advanced Configuration and Power Interface (ACPI) defines common interfaces for hardware recognition and configuration and power management. APC is a manufacturer of power conditioning equipment. The other two terms are not standard.

53. **B.** Possibly owing to the fact that memory upgrades give you the most for your upgrade dollar, and because, unlike sound cards, memory can be upgraded incrementally, this type of upgrade is the most common. Laptops often have a small access panel on the bottom that secures with one or more screws. Removing the panel gives you access to the memory slots. Hard-drive access can be similar, but upgrading hard drives is less common. CD and DVD drives are more often slid into a multiuse bay, which does not require the removal of screws.

54. **D.** The interface for the external monitor is not related to the internal display. Changing the internal display does nothing for external monitor issues, as a general rule. However, it is possible that the key sequence that switches between external monitor, internal display, and both is set for only the external monitor, so there may be nothing wrong with the LCD.

55. **D.** Without the operating system, there is no need for the other types of software listed.

56. **B.** The `command.com` and `cmd.exe` applications are examples of shells that run on top of Windows to provide an interface similar to the original DOS command-line interface.

57. **C.** Datacenter is a highly advanced Windows server platform.

58. **A.** Red Hat recommends 192MB of memory and 4.5GB of free hard drive space to install their version of Linux. Other Linux distributions may have different recommended minimums.

59. **C.** When an item in the Start menu has a right-arrow next to it, you can hover over the item to expand a hidden submenu.

60. **A.** Provided the Windows XP setting is enabled, newly installed programs are temporarily highlighted on the Start menu.

61. **A.** Such icons are known as shortcuts and are links to the actual executable application. Deleting a shortcut removes only that icon, not the application it links to. One caveat: Deleting applications outside of Add or Remove Programs is more harmful than deleting shortcuts. Although you think you have found and eradicated the entire application, you are most likely leaving rubbish in the Registry as well as ancillary files and folders elsewhere on the hard drive, gradually reducing the performance of your system.

62. **B.** Each hard drive volume contains a folder named Recycled; these are represented as the collective Recycle Bin on the Desktop. CD drives, DVD drive, floppy drives, and certain other removable media do not have a Recycled folder, meaning that objects deleted from such a drive are permanently deleted, at least from the file system's perspective.

63. **C.** Double-clicking the title bar of a window alternates between maximizing the window and restoring it. It does not serve to close the window.

64. **A.** The System applet in Control Panel is another way to access the System Properties pages that are accessible by right-clicking My Computer and then clicking Properties.

65. **A.** To change the name of your computer, enter System Properties (for example, by double-clicking the System icon in Control Panel), and then click the tab labeled Computer Name. Finally, click the Change button on this page. In the resulting Computer Name Changes dialog, you can change the value in the Computer Name field, which may require domain-administrator credentials.

66. **D.** The Advanced tab of System Properties has Performance, User Profiles, and Startup and Recovery sections wherein these functions can be performed.

67. **D.** The Remote page in System Properties has a check box labeled Allow Remote Assistance Invitations to Be Sent from This Computer. This box must be checked in order to request remote assistance.

68. **B.** The main categories in the Registry are known as hives, and Registry keys are the subcategories beneath hives where values and their data are stored.

69. **D.** Virtual memory creates a hidden system file, called a page file or a swap file, in a nonfragmented area of the hard drive. The file is used to swap the contents of RAM in pages out to the hard drive when RAM is needed for other instructions and data. The use of virtual memory gives the impression of more RAM than is physically present.

70. **A.** `NTLDR` bootstraps the system by beginning the loading of the operating system. The other options describe, in order, `BOOT.INI`, `NTOSKRNL.EXE`, and `NTDETECT.COM`.

71. **D.** The `NTDETECT.COM` file configures the dynamic portion of the Registry with the current configuration information of the system as it starts up.

72. **C.** Memory chips only a few generations removed from those found on the original motherboards are mounted on memory modules to save space on motherboards and other circuit boards. Memory chips had to be spread out flat across the motherboard, whereas memory modules insert perpendicular to the motherboard, taking far less room.

73. **D.** Although extended partitions can accommodate multiple drive letters, there is no requirement for any partition to have more than one drive letter.

74. **A.** Microsoft operating systems, as well as most others, use an extension to the filename to signify the file's type. Furthermore, these extensions can be associated with an application, which can be used to launch the application automatically when the file is opened.

75. **B.** Microsoft's recommended free hard-disk space for Windows 2000 (2GB) was higher than that for Windows XP (1.5GB).

76. **C.** An unattended installation is not the use of an image file to make an exact duplicate of an original installation of the operating system, but instead uses an answer file to supply variable input to the installation process. Even using Sysprep to create an image for use with an operating-system installation requires the use of a third-party package to copy the image.

77. **C.** In order to reduce the instances of piracy, Microsoft has initiated the policy that their operating systems must be registered online or by phone before they are completely unlocked and legitimate. If the product is not activated with Microsoft, it will stop working when it reaches the activation deadline.

78. **A.** While running a 16-bit operating system, in this case DOS with a Windows 3.1 shell on top, you must run the 16-bit version of the 32-bit operating system's installation program: `WINNT.EXE`. For 32-bit operating systems (Windows 9*x* and later, that is), `WINNT32.EXE` is the necessary program.

79. **B.** Analyzing the fragmentation of your hard drive is done with a separate application known as Disk Defragmenter. Task Manager is not capable of revealing such information.

80. **C.** The F8 key, when pressed at the appropriate time early in the boot-up process, generates a menu of boot-up options that you can use to control how the operating system starts for diagnostic and troubleshooting purposes.

81. **C.** *Thrashing* is the correct term here. None of the others are valid terms for this phenomenon.

82. **C.** If anything, a printer driver is designed to make the printed output more closely resemble on-screen text and graphics.

83. **D.** Although scribing the image onto the drum might sound like the job of the transfer corona wire, there is no scribing or etching on the drum, which would limit its life and cause it to play out after only a few printings. The negative charge on the drum is selectively reduced so that the more negatively charged toner is attracted to the less negative, almost positive, charge of the areas on the drum that represent the image to be printed.

84. **D.** IEEE 802.1D is also known as Spanning Tree, which is completely unrelated to the topic at hand. The other three standards (parallel, FireWire, and wireless) provide for methods of communication between the printer and one or more computers.

85. **C.** The stepper motor moves the scanning head but is not part of it.

86. **D.** Although all the terms mean roughly the same thing, the industry term for aligning the print and scanning heads is *calibration*.

87. **A.** High humidity levels in the paper can cause such a problem, but dry paper does not. The drum and exit rollers are too far along in the paper path to cause jams at the point where the paper is first fed into the printer.

88. **A.** A working scanner will scan with no object present, so repositioning the object has nothing to do with such a problem.

89. **B.** Peer-to-peer networks are characterized by devices offering and requesting services on the network. In a true peer-to-peer network, no one device stands out as a server among the others. LANs can be made up of peer-to-peer, client-server, or both models in a hybrid arrangement.

90. **A.** IEEE 802.3 specifies the CSMA/CD media access method that Ethernet uses.

91. **D.** Of the protocols listed, only NetBEUI lacks the address structure to differentiate networks from the devices on those networks, making NetBEUI-based networks completely flat and unroutable.

92. **D.** The IPX address is made up of a 32-bit network ID for all devices behind the same router and a particular device's 48-bit MAC address, which serves as a unique host ID for that particular node to differentiate it from others on the same network.

93. **C.** Class C addresses start with a first-octet decimal value ranging from 192 to 223, inclusive. Class A is identified by values in the range 1 to 127, with 127 being reserved for software loopbacks. Class B ranges from 128 to 191, and Class D uses the range 224 to 239.

94. **B.** Twisted-pair cabling is manufactured to ANSI/TIA/EIA-568-B standards, which specify electrical performance limits for classifications known as *categories*. Categories are numbered starting at 1, with each higher number representing more stringent requirements to allow increasing frequencies to transmit data with an acceptable and predictable loss of quality.

95. **A.** POTS is limited by the FCC to a bit rate of 53Kbps. The other standards have upper limits starting at over twice this rate, some of them increasing on a somewhat regular basis.

96. **D.** Full-duplex (FD) communication allows bidirectional (duplex) communication simultaneously (full, as in full use of the bandwidth per link). Half-duplex (HD) communication allows bidirectional (duplex) communication, but only one direction at a time (half, as in half of the link's bandwidth at any one time). Simplex communication allows unidirectional communication only, as with public-address systems.

97. **A.** Viruses and worms affect the same systems and rival one another in their destructive ability. Worms do not burrow into applications but instead are self-contained and promote their own spreading and infection.

98. **B.** A wireless LAN (WLAN) can be secured, but it does not have to be. The other terms are all wireless security terms.

99. **C.** The flow of fresh, cooler air across the warmer internal components of a computer is vital to its health. If you contain the computer in an airtight enclosure, the computer will overheat and cease to work or will self-destruct, neither of which is generally desirable.

100. **C.** It is never in your best interest or the best interest of your employer for you to turn tail and run or transfer blame or responsibility to others. Identify with the pain and frustration of the customer, and work through the issue using your expertise and standard troubleshooting methods. Stay calm and in control.