1. In modern PCs, the procedure of replacing BIOS contents is sometimes referred to as:
   A. Hard boot
   B. Overclocking
   C. Flashing the BIOS
   D. Direct memory access (DMA)

2. Which of the following statements is true?
   A. Aborted BIOS update can be resumed by the transaction recovery system
   B. A common security measure is to store BIOS on a non-rewritable memory chip
   C. The process of BIOS update can be aborted and resumed at a later time
   D. Aborted BIOS update could render the computer unusable

3. After completing the initial diagnostics and assigning system resources, the startup BIOS program checks for information about secondary storage devices that might contain the OS. The list of devices and the order in which they should be checked can be found and arranged in the CMOS setup utility, and this option is commonly referred to as:
   A. Boot record
   B. Master Boot Record (MBR)
   C. Partition table
   D. Boot sequence
4. After launching Windows Virtual PC application technician receives error message stating that the Hardware-Assisted Virtualization (HAV) feature is not enabled on the computer. Which of the following steps might help in fixing this problem?

A. Increasing the amount of physical RAM on the system
B. Re-installation of the Windows Virtual PC application
C. Getting into the CMOS setup utility and enabling the virtualization technology setting
D. Safe Mode troubleshooting

5. Which of the following terms refers to a technology that allows for storing passwords, certificates, or encryption keys in a hardware chip?

A. Access Control List (ACL)
B. Encrypting File System (EFS)
C. User Account Control (UAC)
D. Trusted Platform Module (TPM)

6. A computer supporting LoJack technology has two main components installed: an Application Agent residing in the operating system which sends tracking signals to the monitoring center allowing the law enforcement to locate and recover stolen device, and Persistence Module which restores the Application Agent and allows it to survive operating system re-installation or hard drive format. The highest level of security offered by LoJack can be achieved when Persistence Module resides in:

A. Operating system
B. Partition gap on the hard drive
C. USB key
D. Computer's BIOS

7. Which of the answers listed below refers to a firmware interface designed as a replacement for BIOS?

A. UEFI
B. ACPI
C. CMOS
D. USMT
8. Chassis intrusion detection is an option that can be enabled/disabled in the BIOS setup utility (if a BIOS comes equipped with this feature). Coupled with a hardware sensor mounted inside the computer case, this option can be used to check if the case was opened and display a notification alert during next boot.

A. True
B. False

9. A standardized specification of a motherboard (including its dimensions, supported power supply types, and layout of components) is known as the motherboard's:

A. Architecture
B. Blueprint
C. Form factor
D. Diagram

10. Which of the answers listed below refers to a VIA-proprietary low-power consumption SFF type motherboard known for industrial and embedded PC applications?

A. NLX
B. Mini-ITX
C. ATX
D. LPX
E. Mini-ATX

11. Low Profile Extended (LPX) and New Low profile eXtended (NLX) are motherboard form factors known for the usage of a riser card (daughterboard) inserted into a slot near the edge of the board. The main advantage of this type of design is that expansion cards that plug into a riser card on the LPX/NLX motherboard are parallel with the board which saves space and allows for a smaller system case.

A. True
B. False
12. Peripheral Component Interconnect (PCI) is an example of a parallel expansion bus (and a corresponding slot type) used for attaching hardware devices (in the form of an integrated circuit or expansion card) to the motherboard inside the computer case.

A. True
B. False

13. Motherboard slots that enable installation of dedicated graphics controllers include: (Select 2 answers)

A. PGA
B. AGP
C. ATX connector
D. PCIe
E. Slot A

14. Peripheral Component Interconnect Express (abbr. as PCIe) is a high-speed, serial expansion bus designed as a replacement for: (Select all that apply)

A. PCI
B. SATA
C. USB
D. PCI-X
E. AGP

15. The PCIe labeling (×1, ×4, ×8, ×12, ×16 and ×32) refers to the number of communication links (lanes) available in different versions of the PCIe interface. The base value (x1) relates to the speed of a single lane expressed in MB/s. The multiplier (x) allows for easy calculation of the maximum throughput of the entire interface for a given PCIe variant.

A. True
B. False
16. A type of PCI slot for expansion cards installed in laptops characterized by a much smaller form factor when compared to its desktop counterpart is called:

A. miniPCI  
B. PCIe  
C. Mini-SD  
D. PCI-X  
E. Mini-ITX

17. Which of the following slot types allows for adding primary storage modules to the motherboard?

A. USB  
B. SATA  
C. RAM  
D. PATA

18. Which of the answers listed below refer(s) to the features of a motherboard's CPU socket? (Select all that apply)

A. PGA  
B. TPM  
C. LGA  
D. FRU  
E. ZIF

19. Which of the following integrated circuit types defines the core functionality and capabilities of a motherboard?

A. Chipset  
B. Northbridge  
C. I/O Controller Hub (ICH)  
D. Southbridge  
E. Fusion Controller Hub (FCH)
20. In a northbridge/southbridge chipset computer architecture, the function of southbridge is to provide high-speed data links between CPU, RAM, and PCIe graphics controllers.

A. True
B. False

21. In order to retain its configuration data, CMOS RAM requires constant supply of electricity which is provided by the:

A. AC adapter
B. Power Supply Unit (PSU)
C. CMOS battery
D. Uninterruptible Power Supply (UPS)
E. Power inverter

22. Random Access Memory (RAM) falls into the category of the so-called volatile storage media. It requires a continuous flow of electricity to preserve its contents thus all the data stored in RAM lasts only while the power is on.

A. True
B. False

23. What is the most common memory module form factor type used in laptop computers?
A. SO-DIMM
B. DIMM
C. MicroDIMM
D. C-RIMM

24. A memory module form factor commonly used in sub-notebook devices is known as:
A. C-RIMM
B. MicroDIMM
C. SO-DIMM
D. DIMM
25. Certain types of RAM take advantage of an additional bit in order to detect whether a data error has occurred. An extra bit is used to store information about the number of bits set to the value of one in a given string of data (typically one byte) and by examining that information at different stages of processing it is possible to detect whether the data has been corrupted or not. What is the name of that extra bit?

A. Digest  
B. Archive bit  
C. Hash value  
D. Parity bit

26. ECC type RAM:

A. Can only detect errors, but does not have the capability to correct them  
B. Refers to parity RAM (the two terms are interchangeable)  
C. Offers better performance in terms of speed when compared to a non-ECC type of RAM  
D. Can detect and correct errors

27. The color-coded memory slots on the motherboard indicate that the system is capable of taking advantage of the multi-channel memory architecture.

A. True  
B. False

28. A type of daughterboard equipped with expansion slots providing the capability for attaching further expansion cards that are placed parallel with the mainboard in order to save space inside the system case is known as:

A. FireWire card  
B. Riser card  
C. Storage card  
D. Thunderbolt card
29. The ability to replace computer system components without causing interruption to the system is referred to as:

A. Hardware acceleration
B. Multitasking
C. Hot swapping
D. Cold plugging

30. A storage technology that combines multiple disk drive components into a single logical unit to increase logical volume size, improve performance, or reliability is known as:

A. Serial ATA (SATA)
B. Small Computer System Interface (SCSI)
C. Single Large Expensive Disk (SLED)
D. Redundant Array of Independent Disks (RAID)
E. Parallel ATA (PATA)

31. RAID Level 10 requires a minimum of:

A. 2 drives
B. 3 drives
C. 4 drives
D. 5 drives

32. Which of the answers listed below describe the features of a tape drive? (Select 3 answers)

A. Fast seek times
B. Low capacity
C. Volatile storage medium
D. Magnetic media
E. Slow seek times
F. High capacity
33. Which of the following answers lists storage media types arranged from lowest to highest capacity?
A. Floppy disk, CD, DVD, BD (Blu-ray), Tape
B. CD, DVD, Floppy disk, BD (Blu-ray), Tape
C. Floppy disk, CD, DVD, Tape, BD (Blu-ray)
D. Floppy disk, Tape, CD, DVD, BD (Blu-ray)

34. A type of CPU architecture where a single physical CPU contains more than one execution core on a single die or chip is known as:
A. Parallel processing
B. Symmetric Multiprocessing (SMP)
C. Multicore
D. Hyperthreading (HTT)

35. A smaller, faster memory type for storing copies of the data from frequently used main memory locations used by the central processing unit of a computer to reduce the average time to access memory is called:
A. Secondary storage
B. RAM
C. ECC memory
D. CPU cache

36. Which of the following built-in functionalities allows a CPU to take over tasks normally executed by a dedicated graphics card?
A. DisplayPort
B. Integrated GPU
C. Multicore architecture
D. Hyperthreading
E. VGA mode
37. A security feature used by CPUs for isolating areas of memory in order to prevent the execution of code from non-executable memory locations is known as:

A. Data Loss Prevention (DLP)
B. No-eXecute bit (NX bit)
C. Error-Correcting Code (ECC)
D. Parity bit

38. Which of the answers listed below refer(s) to solution(s) aimed at improving CPU heat dissipation? (Select all that apply)

A. Heat sink
B. CPU fan
C. Dual rail
D. Thermal paste
E. Liquid-based cooling
F. P1 connector

39. What is the maximum allowable cable length for USB devices? A. 18 inches
B. 4.5 meters
C. 5 meters
D. 1 meter

40. Which of the following statements apply to the IEEE 1394a standard? (Select 2 answers) A. Data transfer rate of up to 800 Mbps
B. FireWire 400
C. Data transfer rate of up to 480 Mbps
D. FireWire 800
E. Data transfer rate of up to 400 Mbps F. Parallel bus interface standard
41. What is the maximum data transfer rate supported by the SATA 1.0 standard?
A. 1.5 Gbps
B. 1 Gbps
C. 2.5 Gbps
D. 3 Gbps

42. Video Graphics Array (VGA) connector is a:
A. Three-row 15-pin connector
B. Two-row 40-pin connector
C. Three-row 29-pin connector
D. PCIe 6/8-pin connector

43. Examples of interfaces providing the capability for transmission of both video and audio data include: (Select all that apply)
A. S/PDIF
B. DVI
C. S-Video
D. VGA
E. HDMI

44. Which of the following connector types are used with twisted-pair cabling? (Select 2 answers)
A. BNC
B. LC
C. RJ-45
D. RJ-11
E. ST
45. A single copper-based Thunderbolt cable provides the capability for a simultaneous transfer of: (Select all that apply)

A. Data from connected PCI Express (PCIe) devices
B. DC power
C. Data from connected DisplayPort devices
D. AC power

46. Connector types used with Thunderbolt devices include: (Select 2 answers) A. USB Type-A
B. DVI-A
C. Mini DisplayPort (MDP) D. USB Type-B
E. VGA connector
F. USB Type-C

47. The 15-pin ATX PSU SATA power connector supplies electrical power at the voltage(s) of: (Select all that apply)

A. +3 V
B. +3.3 V
C. +4 V
D. +5 V
E. +12 V

48. Which of the following auxiliary connectors is used to supply dedicated power for a high-end CPU?

A. 4/8-pin 12v
B. P1
C. PCIe 6/8-pin
D. T568A
49. PC Power Supply Units (PSUs) may accept an AC current of 110-120 volts (standard AC current in the United States and Canada) or 220-240 volts (European AC standard). A PSU might have either a manual selector switch on the back of the device for adjusting the supplied voltage (these types of PSUs are referred to as fixed-input devices), or automatically adapt to the supplied AC voltage (auto-switching PSUs).

A. True
B. False

50. Which of the hardware requirements listed below should be given priority while assembling a custom graphic/CAD/CAM design workstation? (Select 3 answers)

A. High-end GPU
B. Multicore CPU
C. High-end cooling
D. Maximum amount of RAM
E. High-capacity HDD
F. Dual monitors

51. A computer on a network where most functions are carried out on a central server, or a software application that uses client-server model wherein the server performs all the processing is commonly referred to as:

A. Thick client
B. Active hub
C. Thin client
D. Virtual machine

52. Which of the following answers describe the features of the Twisted Nematic (TN) LCD panel technology? (Select 3 answers)

A. Low viewing angles
B. Fast response times
C. Low color quality
D. High color quality
E. Slow response times
F. Wide viewing angles
53. What are the characteristic features of the In-Plane Switching (IPS) LCD panel technology? (Select 3 answers)
   A. High color quality
   B. Fast response times
   C. Wide viewing angles
   D. Low color quality
   E. Slow response times
   F. Low viewing angles

54. In order to ensure the sharpest text and image displayed by a CRT monitor it is usually recommended to set the monitor to run only at a specific resolution (which is also referred to as the CRT’s native resolution).
   A. True
   B. False

55. Brightness of an LCD monitor (the level of light emitted by an LCD display) is measured in:
   A. Pixels
   B. Candelas per square meter (cd/m²)
   C. Watts
   D. Dots per inch (DPI)

56. Which of the following units is used for measuring the brightness of an image rendered by an image projector?
   A. dB
   B. cd/m²
   C. Lumen
   D. Hz
57. Which of the connector types listed below can be used for connecting keyboards and mice to a PC? (Select all that apply)
A. S/PDIF
B. PS/2
C. 6-pin Mini-DIN
D. USB
E. PCIe 6/8-pin

58. Which of the following answers refer to examples of output devices? (Select 3 answers) A. Printer
B. Barcode reader
C. Display device
D. Smart card reader
E. Motion sensor
F. Speaker

59. What is the name of a hardware device that allows for administering multiple hosts with the use of a single mouse, keyboard, and computer screen?
A. Device Manager
B. KVM switch
C. Microsoft Management Console (MMC)
D. Docking station

60. The term "Smart TV" refers to a type of advanced television set that enables more interactive user experience by offering additional features such as web browsing or video streaming.
A. True
B. False
61. A standalone appliance connected to a TV set or other display device that enables receiving television signal and/or Internet data is commonly referred to as:

A. Smart TV
B. Thick client
C. Set-Top Box
D. UTM appliance

62. A printer’s capability to print on both sides of a paper sheet is known as:

A. Duplex printing
B. Dual printing C. Double printing D. Simplex printing

63. Which of the answers listed below refers to Apple technology that allows for automatic discovery of services and network-enabled devices on a local network?

A. iCloud
B. Bonjour
C. Spotlight
D. Boot Camp

64. Apple technology built into most popular printer models enabling network printing service without the need for manual configuration from the user side is called:

A. AirPort
B. TCP/IP
C. AirPrint
D. Bonjour
65. Which of the following answers lists the correct order of the laser printing process? A. Processing, charging, exposing, developing, transferring, fusing, cleaning B. Developing, cleaning, exposing, transferring, charging, fusing, processing C. Processing, exposing, charging, transferring, developing, fusing, cleaning D. Cleaning, fusing, exposing, developing, transferring, processing, charging

66. Which of the answers listed below refer to the characteristic features of fiber-optic cabling? (Select all that apply) A. Immune to electromagnetic interference B. Provides higher level of security than copper cabling (difficult to tap into) C. High attenuation D. More suitable for carrying digital information than copper cabling E. Low bandwidth capacity

67. What kind of termination would be used to create a straight-through cable? (Select two answers) A. T568A on both ends B. Rollover/Yost C. T568A and T568B D. T568B on both ends

68. Which of the following connector types is used with coaxial cabling? A. MT-RJ B. LC C. BNC D. ST
69. One of the differences between the UTP and STP cabling is that STP cable takes advantage of additional protective cover reducing signal interference from outside sources.

A. True
B. False

70. What is the maximum cable segment length for a CAT5e cable?
A. 25 meters
B. 50 meters
C. 100 meters
D. 250 meters

71. A type of cabling coated with a fire-retardant jacket placed in the space between dropped ceiling and structural ceiling is called:
A. HVAC
B. Plenum
C. EMI
D. Non-plenum

72. What is the bit length of IPv4 address?
A. 64 bits
B. 32 bits
C. 128 bits
D. 48 bits

73. Which of the following is an example of an APIPA address? A. 127.0.0.1
B. 192.168.0.3 C. 169.254.10.20 D. 65.55.57.27
74. Which of the server types listed below is used for dynamic assignment of IP addresses?

A. DHCP  
B. DNS  
C. WINS  
D. SMTP

75. FTP runs by default on ports: (Select 2 answers)

A. 25  
B. 23  
C. 20  
D. 21  
E. 22

76. In order to be able to connect to a website and display its contents, a URL entered in the web browser address bar needs to be translated into an IP address. Which of the servers listed below is used to handle this type of request?

A. DHCP server  
B. ICS server  
C. SNMP server  
D. DNS server

77. Remote Desktop Protocol (RDP) runs by default on TCP port:

A. 3389  
B. 67  
C. 443  
D. 25
78. Which of the TCP port numbers listed below is used by an Apple-proprietary file sharing protocol? A. 427  
B. 443  
C. 445  
D. 548

79. Which of the following answers refers to a protocol used in network management systems to monitor network-attached devices?  
A. SIP  
B. SNMP  
C. NetBIOS  
D. RTP

80. Which of the answers listed below refers to a secure replacement for Telnet?  
A. ICMP  
B. FTP  
C. IPv6  
D. SSH

81. IEEE 802.11 is a set of standards for implementing:  
A. Ethernet  
B. WiMAX  
C. WLANs  
D. Bluetooth
82. Which of the following answers refer to the characteristic features of the 802.11b wireless standard? (Select 2 answers)

A. 5.0 frequency range
B. 54 Mbps
C. 2.4 GHz frequency range
D. OFDM
E. 11 Mbps

83. Which of the wireless encryption schemes listed below offers the highest level of protection?

A. WEP
B. WPA2
C. WAP
D. WPA

84. A server with a private IP address has been set up to handle requests from an outside (public) network. Which of the following solutions would enable this function?

A. Port mirroring
B. Port bonding
C. Port labeling
D. Port forwarding

85. A lightly protected subnet placed on the outside of the company's firewall consisting of publicly available servers is known as:

A. VPN
B. Access Point (AP)
C. VLAN
D. DMZ
86. A Network Address Translation (NAT) method providing temporary mapping between private IP address and any of the IP addresses belonging to the available public IP address pool is known as:

A. PPTP  
B. Dynamic NAT  
C. DDNS  
D. Static NAT

87. What are the characteristic features of satellite Internet connections? (Select all that apply)

A. Lack of signal interference  
B. Signal latency  
C. High connection speed  
D. Interference (weather dependent)  
E. Low connection speed

88. A software or hardware that checks information coming from the Internet or other type of outside network and depending on settings either blocks it or allows it to pass through is called:

A. Antispyware  
B. Firewall  
C. Malware  
D. Antivirus

89. Which of the following tools would be used for attaching cables to a patch panel?

A. Crimper  
B. Toner probe  
C. Punch down tool  
D. Cable tester
90. Which of the acronyms listed below refers to thin and lightweight display devices offering higher contrast ratio and color quality in comparison to LCD without the need for a special light source to produce a visible image?

A. OLED  
B. LED  
C. HDMI  
D. HTPC

91. Inverter: (Select 2 answers)

A. Converts AC power into DC power  
B. Supplies voltage to backlights of an LCD panel  
C. Converts DC power into AC power  
D. Supplies voltage to backlights of an OLED display

92. Which of the following functionalities allows for overcoming keyboard size restrictions in laptops?

A. Touchpad  
B. Numeric keypad  
C. Fn key  
D. Digitizer

93. While troubleshooting problems with a Network Interface Card (NIC), connector pins on the NIC's port can be tested with the use of:

A. Loopback plug  
B. Punch down tool  
C. Pliers  
D. Molex connector
94. Self-Monitoring, Analysis and Reporting Technology (S.M.A.R.T.) allows for monitoring system for anticipated:

A. HDD failures
B. Network interface problems
C. Video adapter failures
D. Power spikes

95. The /R switch of the CHKDSK utility: (Select all that apply)
A. Displays cleanup messages
B. Locates bad sectors and recovers readable information
C. Uses more system resource to perform a scan as fast as possible
D. Displays the full path and name of every file on the disk
E. Fixes errors on the disk

96. A Microsoft Windows command-line utility that provides disk partitioning functions in Windows 7/8/8.1 is called:

A. DISKPART
B. MSTSC
C. REGEDIT
D. FDISK

97. What is the name of a Windows command-line utility that displays TCP/IP configuration settings?
A. IFCONFIG
B. DXDIAG
C. IPCONFIG
D. MSCONFIG
98. NETSTAT is a command-line utility used for:
A. Testing the reachability of a remote host
B. Displaying intermediary points on the packet route
C. Checking the TCP/IP configuration details
D. Displaying active TCP/IP connections

99. A set of replacement parts for a printer is commonly referred to as: (Select best answer)
A. Field replaceable unit
B. Maintenance kit
C. Standard technician toolkit
D. Spare kit

100. A software that temporarily stores print jobs on the computer hard disk or in memory until the printer is ready to print them is called:
A. Print spooler
B. Task Manager
C. Feed assembly
D. Task Scheduler
1. Answer: C. Flashing the BIOS

Explanation: In modern PCs, the procedure of replacing BIOS contents is sometimes referred to as flashing the BIOS.

2. Answer: D. Aborted BIOS update could render the computer unusable

Explanation: Improperly executed or aborted BIOS update process could render the computer unusable.

3. Answer: D. Boot sequence

Explanation: After completing the initial diagnostics and assigning system resources, the startup BIOS program checks for information about secondary storage devices that might contain the OS. The list of devices and the order in which they should be checked can be found and arranged in the CMOS setup utility, and this option is commonly referred to as boot sequence.

4. Answer: C. Getting into the CMOS setup utility and enabling the virtualization technology setting

Explanation: Hardware-assisted virtualization creates more efficient virtualization environment by taking advantage of the CPU hardware capabilities. In order to be accessible, this feature might need to be first enabled in the computer's BIOS settings.

5. Answer: D. Trusted Platform Module (TPM)

Explanation: The Trusted Platform Module (TPM) is an international standard for a dedicated microcontroller designed to secure hardware by integrating cryptographic keys into devices. The nature of hardware-based cryptography ensures that the information stored in hardware is better protected from external attacks executed with the use of software. Trusted modules can be found in PCs and laptops, but also in mobile devices and network equipment.

6. Answer: D. Computer's BIOS

Explanation: A computer supporting LoJack technology has two main components installed: an Application Agent residing in the operating system which sends tracking signals to the monitoring center allowing the law enforcement to locate and recover stolen device, and Persistence Module which restores the Application Agent and allows it to survive operating system re-installation or hard drive format. The highest level of security offered by LoJack can be achieved when Persistence Module resides in a computer's BIOS.
7. Answer: A. UEFI

Explanation: Unified Extensible Firmware Interface (UEFI) is a firmware interface designed as a replacement for BIOS. UEFI offers a variety of improvements over BIOS including Graphical User Interface (GUI), mouse support, network access capability, or security boot functionality designed to prevent the loading of malware and unauthorized operating systems during the computer start-up process.

8. Answer: A. True

Explanation: Chassis intrusion detection is an option that can be enabled/disabled in the BIOS setup utility (if a BIOS comes equipped with this feature). Coupled with a hardware sensor mounted inside the computer case, this functionality can be used to check if the case was opened and display a notification alert during next boot.

9. Answer: C. Form factor

Explanation: A standardized specification of a motherboard (including its dimensions, supported power supply types, and layout of components) is known as the motherboard's form factor.

10. Answer: B. Mini-ITX

Explanation: Mini-ITX is a VIA-proprietary low-power consumption Small Form Factor (SFF) motherboard type known for industrial and embedded PC applications.

11. Answer: A. True

Explanation: Low Profile Extended (LPX) and New Low profile eXtended (NLX) are motherboard form factors known for the usage of a riser card (daughterboard) inserted into a slot near the edge of the board. The main advantage of this type of design is that expansion cards that plug into a riser card on the LPX/NLX motherboard are parallel with the board which saves space and allows for a smaller system case.

12. Answer: A. True

Explanation: Peripheral Component Interconnect (PCI) is an example of a parallel expansion bus (and a corresponding slot type) used for attaching hardware devices (in the form of an integrated circuit or expansion card) to the motherboard inside the computer case.
13. Answers: B and D. AGP and PCIe

Explanation: Dedicated video cards can be attached to the motherboard through the older Accelerated Graphics Port (AGP) and PCI Express (PCIe) slots.


Explanation: Peripheral Component Interconnect Express (abbr. as PCIe) is a high-speed, serial expansion bus designed as a replacement for Peripheral Component Interconnect (PCI), Peripheral Component Interconnect eXtended (PCI-X), and Accelerated Graphics Port (AGP).

15. Answer: A. True

Explanation: The PCIe labeling (×1, ×4, ×8, ×12, ×16 and ×32) refers to the number of communication links (lanes) available in different versions of the PCIe interface. The base value (x1) relates to the speed of a single lane expressed in MB/s. The multiplier (x) allows for easy calculation of the maximum throughput of the entire interface for a given PCIe variant.

16. Answer: A. miniPCI

Explanation: A type of PCI slot for expansion cards installed in laptops characterized by a much smaller form factor when compared to its desktop counterpart is called miniPCI.

17. Answer: C. RAM

Explanation: The term "Primary storage" refers to a type of computer data storage that can be accessed directly by the Central Processing Unit (CPU). Random Access Memory (RAM) module is an example of a primary storage module.

18. Answers: A, C, and E. PGA, LGA, and ZIF

Explanation: Pin Grid Array (PGA) and Land Grid Array (LGA) are two types of integrated circuit packaging for CPUs that dictate the architecture of a CPU socket. PGA sockets are characterized by the presence of holes that accept corresponding pins placed on the underside of a CPU chip. An LGA CPU socket type is notable for having the pins on the socket. Zero Insertion Force (ZIF) is a specific feature of certain types of microprocessor sockets that facilitates the insertion and removal of a CPU chip.
19. Answer: A. Chipset
Explanation: Chipset is a type of a motherboard's integrated circuit that defines the core functionality and capabilities of the motherboard. The term often refers to a specific pair of chips (northbridge and southbridge) embedded on the motherboard.

20. Answer: B. False
Explanation: In a northbridge/southbridge chipset computer architecture, the function of southbridge is to control peripheral buses used for connecting lower-speed I/O devices such as hard drives, keyboards, mice, PCI devices, as well as embedded hardware including BIOS, integrated graphics/audio, USB, or Ethernet interfaces. The function of providing high-speed data links between CPU, RAM, and PCIe graphics controllers is handled by northbridge.

21. Answer: C. CMOS battery
Explanation: In order to retain its configuration data, CMOS RAM requires constant supply of electricity which is provided by the CMOS battery.

22. Answer: A. True
Explanation: Random Access Memory (RAM) falls into the category of the so-called volatile storage media. It requires a continuous flow of electricity to preserve its contents thus all the data stored in RAM lasts only while the power is on.

23. Answer: A. SO-DIMM
Explanation: Small outline dual in-line memory module (SO-DIMM) is the most common memory module form factor type used in laptop computers.

24. Answer: B. MicroDIMM
Explanation: A type of memory module form factor commonly used in sub-notebook devices is called MicroDIMM.

25. Answer: D. Parity bit
Explanation: Certain types of RAM take advantage of an additional parity bit in order to detect whether a data error has occurred. This extra bit is used to store information about the number of bits set to the value of one in a given string of data (typically one byte) and by examining that information at different stages of processing it is possible to detect whether the data has been corrupted or not.
26. Answer: D. Can detect and correct errors

Explanation: Error-Correcting Code (ECC) RAM includes special circuitry for testing the accuracy of data and fixing possible errors. Compared to a non-ECC type of memory, which is commonly used as the main system memory in desktop PCs, the ECC RAM is a more expensive option and will always perform slower.

27. Answer: A. True

Explanation: The color-coded memory slots on the motherboard indicate that the system is capable of taking advantage of the multi-channel memory architecture. Taking advantage of the performance benefits offered by the multi-channel memory architecture requires memory modules of matching types, speeds, and capacity, as well as installing the modules in appropriate memory slots (slots of matching color) on the motherboard.

28. Answer: B. Riser card

Explanation: A type of daughterboard equipped with expansion slots providing the capability for attaching further expansion cards that are placed parallel with the mainboard in order to save space inside the system case is known as a riser card.

29. Answer: C. Hot swapping

Explanation: The ability to replace computer system components without causing interruption to the system is referred to as hot swapping.

30. Answer: D. Redundant Array of Independent Disks (RAID)

Explanation: Redundant Array of Independent Disks (RAID) is a storage technology that allows for combining multiple disk drive components into a single logical unit in order to increase logical volume size, improve performance, or reliability.

31. Answer: C. 4 drives

Explanation: RAID Level 10 requires a minimum of 4 drives.
32. Answers: D, E, and F. Magnetic media, Slow seek times, and High capacity

Explanation: The characteristic features of tape drives include high capacity, slow seek times, and reliance on magnetic media.

33. Answer: A. Floppy disk, CD, DVD, BD (Blu-ray), Tape

Explanation: The correct answer for this test question lists storage media types arranged from lowest to highest capacity.

34. Answer: C. Multicore

Explanation: A type of CPU architecture where a single physical CPU contains more than one execution core on a single die or chip is referred to as multicore architecture.

35. Answer: D. CPU cache

Explanation: A smaller, faster memory type for storing copies of the data from frequently used main memory locations used by the Central Processing Unit (CPU) of a computer to reduce the average time to access memory is called CPU cache.

36. Answer: B. Integrated GPU

Explanation: An integrated Graphics Processing Unit (GPU) allows a Central Processing Unit (CPU) to take over tasks normally executed by a dedicated graphics card. Compared to a system that relies on a dedicated graphics controller, the main disadvantage of integrated GPU relates to the degraded performance during the execution of video-related tasks.

37. Answer: B. No-eXecute bit (NX bit)

Explanation: A security feature used by CPUs for isolating areas of memory in order to prevent the execution of code from non-executable memory locations is known as No-eXecute bit (NX bit). The purpose of the NX bit is to protect the system against the execution of malicious code.

38. Answers: A, B, D, and F. Heat sink, CPU fan, Thermal paste, and Liquid-based cooling

Explanation: Solutions aimed at improving heat dissipation from the CPU include heat sinks, CPU fans, thermal paste, and liquid-based cooling.
39. Answer: C. 5 meters

Explanation: The USB 1.1 Standard specifies that a standard cable can have a maximum length of 5 meters with devices operating at Full Speed (12 Mbps). USB 2.0 provides for a maximum cable length of 5 meters for devices running at Hi Speed (480 Mbps). The USB 3.0 standard does not directly specify a maximum cable length.

40. Answers: B and E. FireWire 400 and Data transfer rate of up to 400 Mbps

Explanation: Both answers refer to the IEEE 1394a standard. IEEE 1394 interface ("FireWire") is a serial bus interface standard developed by Apple supporting data transfer rates of up to 400Mbps (IEEE 1394a) and 800Mbps (IEEE 1394b).

41. Answer: A. 1.5 Gbps

Explanation: Serial ATA (SATA) 1.0 specifies the maximum data transfer rate of 1.5 Gbps. The maximum data rate supported by the SATA 2.0 standard is 3 Gbps. SATA 3.0 specifies the maximum data transfer rate of 6 Gbps.

42. Answer: A. Three-row 15-pin connector

Explanation: Video Graphics Array (VGA) connector is a three-row 15-pin connector.

43. Answer: E. HDMI

Explanation: Of the given answer choices for this question, only High Definition Multimedia Interface (HDMI) provides the capability for transmission of both video and audio data.

44. Answers: C and D. RJ-45 and RJ-11

Explanation: RJ-45 and RJ-11 are connector types used with twisted-pair cabling.

45. Answers: A, B, and C. Data from connected PCI Express (PCIe) devices, DC power, and Data from connected DisplayPort devices

Explanation: A single copper-based Thunderbolt cable provides the capability for a simultaneous transfer of data from connected PCI Express (PCIe) devices, DisplayPort devices, as well as DC power.
46. Answers: C and F. Mini DisplayPort (MDP) and USB Type-C

Explanation: Thunderbolt devices use Mini DisplayPort (MDP) and USB Type-C connectors.

47. Answers: B, D, and E. +3.3 V, +5 V, and +12 V

Explanation: The 15-pin ATX PSU SATA power connector supplies electrical power at the voltages of +3.3 V, +5 V, and +12 V.

48. Answer: A. 4/8-pin 12v

Explanation: ATX12V 4-pin power connector (also called the P4 power connector) is a second connector that goes to the motherboard (in addition to the main 24-pin connector) to supply dedicated power for the processor. 8-pin connectors are used for high-end motherboards and processors with higher power requirements.

49. Answer: A. True

Explanation: PC Power Supply Units (PSUs) may accept an AC current of 110-120 volts (standard AC current in the United States and Canada) or 220-240 volts (European AC standard). A PSU might have either a manual selector switch on the back of the device for adjusting the supplied voltage (these types of PSUs are referred to as fixed-input devices), or automatically adapt to the supplied AC voltage (auto-switching PSUs).

50. Answers: A, B, and D. High-end GPU, Multicore CPU, Maximum amount of RAM

Explanation: CompTIA A+ objectives list high-end GPU, multicore CPU, and maximum amount of RAM as priority hardware components for a custom workstation dedicated for graphic design, Computer-Aided Design (CAD), and Computer-Aided Manufacturing (CAM).

51. Answer: C. Thin client

Explanation: A computer on a network where most functions are carried out on a central server, or a software application that uses client-server model wherein the server performs all the processing is commonly referred to as thin client.

52. Answers: A, B, and C. Low viewing angles, Fast response times, Low color quality

Explanation: The characteristic features of the Twisted Nematic (TN) LCD panel technology include low viewing angles, low color quality, and fast response times.

Explanation: The characteristic features of the In-Plane Switching (IPS) LCD panel technology include high color quality, wide viewing angles, and slow response times.

54. Answer: B. False

Explanation: The term "Native resolution" refers to a single fixed resolution of the display screen. While CRT monitors can usually display images at various resolutions, for an LCD monitor in order to ensure the best quality of displayed image it is usually recommended to set the monitor to run only at a specific resolution (it's native resolution).

55. Answer: B. Candelas per square meter (cd/m2)

Explanation: Brightness of an LCD monitor (the level of light emitted by an LCD display) is measured in candelas per square meter (cd/m2).

56. Answer: C. Lumen

Explanation: Brightness of an image rendered by an image projector is measured in lumens.

57. Answers: B, C, and D. PS/2, 6-pin Mini-DIN, and USB

Explanation: The PS/2 connector is a 6-pin Mini-DIN connector used for connecting keyboards and mice to a PC compatible computer system. Keyboards and mice are also attached to a PC via USB.

58. Answers: A, C, and F. Printer, Display device, Speaker

Explanation: Examples of output devices include printers, display devices, and speakers. Barcode readers, smart card readers, and motion sensors fall into the category of input devices.

59. Answer: B. KVM switch

Explanation: A KVM switch (with KVM in its name referring to keyboard, video and mouse) is a hardware device that allows a user to control multiple computers with the use of a single keyboard, video monitor and mouse.
60. Answer: A. True

Explanation: The term "Smart TV" refers to a type of advanced television set that enables more interactive user experience by offering additional features such as web browsing or video streaming.

61. Answer: C. Set-Top Box

Explanation: A standalone appliance connected to a TV set or other display device that enables receiving television signal and/or Internet data is commonly referred to as a set-top box.

62. Answer: A. Duplex printing

Explanation: A printer’s capability to print on both sides of a paper sheet is known as duplex printing capability. Duplexing assembly is a printer component that allows for automatic printing on both sides of the page.

63. Answer: B. Bonjour

Explanation: Apple's technology that allows for automatic discovery of services and network-enabled devices on a local network is called Bonjour.

64. Answer: C. AirPrint

Explanation: Apple technology built into most popular printer models enabling network printing service without the need for manual configuration from the user side is called AirPrint.

65. Answer: A. Processing, charging, exposing, developing, transferring, fusing, cleaning

Explanation: Answer A in this question lists the correct sequence of steps used in the laser imaging (printing) process.

66. Answers: A, B, and D. Immune to electromagnetic interference, Provides higher level of security than copper cabling (difficult to tap into), and More suitable for carrying digital information than copper cabling

Explanation: Fiber-optic cabling offers high bandwidth capacity (high data rates) and low attenuation (loss of signal during transmissions over long distances). It is more suitable for carrying data than copper cabling due to its immunity to electromagnetic interference (EMI), a common problem affecting metal wires. Optical fiber is also more difficult to tap into, which makes it more secure transmission medium than copper.
67. Answers: A and D. T568A on both ends and T568B on both ends
Explanation: A UTP cable wired as T568A or as T568B on both ends is a straight-through cable.

68. Answer: C. BNC
Explanation: Bayonet Neill–Concelman (BNC) is a common type of connector used with coaxial cabling. Mechanical Transfer Registered Jack (MT-RJ), Straight Tip (ST) connector, and Lucent Connector (LC) are connectors used for fiber optic cabling.

69. Answer: A. True
Explanation: One of the differences between the UTP and STP cabling is that STP cable takes advantage of additional protective cover reducing signal interference from outside sources.

70. Answer: C. 100 meters
Explanation: The maximum cable segment length for CAT5e cable is 100 meters.

71. Answer: B. Plenum
Explanation: The term "Plenum" refers to an enclosed space used for airflow, such as the one between a dropped ceiling and the structural ceiling in a building. Cabling coated with a fire-retardant jacket placed in this space is called plenum-rated cabling. Plenum-rated cabling must meet special requirements so that it doesn't catch on fire easily.

72. Answer: B. 32 bits
Explanation: The length of IPv4 address is 32 bits. IPv6 addresses are made of 128 bits. MAC addresses consist of 48 bits.

73. Answer: C. 169.254.10.20
Explanation: Automatic Private IP Addressing (APIPA) allows a Windows host to self-configure an IP address and subnet mask when Dynamic Host Configuration Protocol (DHCP) is unavailable. APIPA uses an address block range between 169.254.1.0 and 169.254.254.255. APIPA-assigned addresses are valid only for communications within a network segment that a host is connected to (a host with APIPA-assigned address cannot connect to the Internet).
74. Answer: A. DHCP

Explanation: Dynamic IP addresses are managed by Dynamic Host Configuration Protocol (DHCP) server. DNS servers resolve host names to IP addresses. WINS servers resolve NetBIOS names to IP addresses in Windows networks. SMTP servers handle electronic mail (e-mail) messages.

75. Answers: C and D. 20 and 21

Explanation: File Transfer Protocol (FTP) is an unencrypted file exchange protocol. FTP employs TCP ports 20 and 21. Connection established over TCP port 20 (the data connection) is used for exchanging data, connection made over TCP port 21 (the control connection) remains open for the duration of the whole session and is used for session administration (commands, identification, and passwords).

76. Answer: D. DNS server

Explanation: In order to be able to connect to a website and display its contents, a URL entered in the web browser address bar needs to be translated into an IP address. This type of request is handled by a DNS server.

77. Answer: A. 3389

Explanation: Remote Desktop Protocol (RDP) is a Microsoft-proprietary remote connection protocol. RDP runs by default on TCP port 3389.

78. Answer: D. 548

Explanation: Apple Filing Protocol (AFP) is a file sharing protocol used in Apple networks. AFP runs by default on TCP port number 548.

79. Answer: B. SNMP

Explanation: Simple Network Management Protocol (SNMP) is a UDP-based, Application Layer protocol used in network management systems to monitor network-attached devices. SNMP is typically integrated into most modern network infrastructure devices such as routers, bridges, switches, servers, printers, copiers, fax machines, and other network-attached devices. An SNMP-managed network consists of three key components: a managed device, a network-management software module that resides on a managed device (Agent), and a network management system (NMS) which executes applications that monitor and control managed devices and collect SNMP information from Agents. All SNMP-compliant devices include a virtual database called Management Information Base (MIB) containing information about configuration and state of the device that can be queried by the SNMP management station.
80. Answer: D. SSH

Explanation: Secure Shell (SSH) is a tunneling protocol for secure remote login and other secure network services designed as a replacement for Telnet and other insecure remote shells.

81. Answer: C. WLANs

Explanation: IEEE 802.11 is a set of standards for implementing Wireless Local Area Networks (WLANs).

82. Answers: C and E. 2.4 GHz frequency range and 11 Mbps

Explanation: 802.11b devices operate in 2.4 GHz frequency range and support transmission rates of up to 11 Mbps.

83. Answer: B. WPA2

Explanation: Wi-Fi Protected Access (WPA) and Wired Equivalent Privacy (WEP) are encryption standards designed for securing wireless networks. WEP is an older standard and due to its vulnerabilities is not recommended. WPA was designed as an interim replacement for WEP, and WPA2 was introduced as the official standard offering the strongest security of the three.

84. Answer: D. Port forwarding

Explanation: Port forwarding allows a server placed within a private LAN to handle requests from an outside (public) network.

85. Answer: D. DMZ

Explanation: In the context of computer security, the term Demilitarized Zone (DMZ) refers to a lightly protected subnet consisting of publicly available servers placed on the outside of the company's firewall.

86. Answer: B. Dynamic NAT

Explanation: Dynamic NAT provides temporary mapping between private IP address and any of the IP addresses belonging to the available public IP address pool.
87. Answers: B, D, and E. Signal latency, Interference (weather dependent), and Low connection speed

Explanation: The characteristic features of satellite Internet connections include signal latency, low connection speed, and dependency on good weather conditions.

88. Answer: B. Firewall

Explanation: A software or hardware that checks information coming from the Internet or other type of outside network and depending on settings either blocks it or allows it to pass through is known as a firewall.

89. Answer: C. Punchdown tool

Explanation: Attaching a cable to a patch panel requires punchdown tool.

90. Answer: A. OLED

Explanation: Organic Light-Emitting Diode (OLED) display devices offer higher contrast ratio and color quality in comparison to LCD without the need for a special light source to produce a visible image.

91. Answers: B and C. Supplies voltage to backlights of an LCD panel and Converts DC power into AC power

Explanation: An inverter is an electric device that changes direct current (DC) to alternating current (AC). In laptops, inverter supplies voltage to backlights of an LCD panel.

92. Answer: C. Fn key

Explanation: The Fn (function) key allows to overcome keyboard size restrictions in laptops. The Fn key allows to combine keys which are usually kept separate facilitating more compact design of a laptop keyboard.

93. Answer: A. Loopback plug

Explanation: Connector pins on the Network Interface Card (NIC) port can be tested with the use of a loopback plug.
94. Answer: A. HDD failures


95. Answers: B and E. Locates bad sectors and recovers readable information and Fixes errors on the disk

Explanation: CHKDSK is a Microsoft Windows command-line utility used for checking disk, fixing errors on the disk, and displaying status report. The /R switch of the CHKDSK utility allows for locating bad sectors and recovering readable information as well as fixing errors on the disk.

96. Answer: A. DISKPART

Explanation: DISKPART is a command-line utility providing disk partitioning functions in Windows 7. DISKPART replaces the FDISK utility known from the earlier versions of MS Windows.

97. Answer: C. IPCONFIG

Explanation: Windows command-line utility for displaying and configuring TCP/IP settings is called IPCONFIG (IFCONFIG is the Linux equivalent of this tool used in UNIX-like systems). By default, IPCONFIG displays only the IP address, subnet mask and default gateway for each network adapter on the system configured to use TCP/IP. IPCONFIG /ALL displays full configuration information (including, for example, MAC address of the Network Interface Card).

98. Answer: D. Displaying active TCP/IP connections

Explanation: NETSTAT is a command-line utility used for displaying active TCP/IP connections. Command-line program used for testing the reachability of a remote host is called PING. Windows command-line utility for displaying intermediary points on the packet route is called TRACERT. Windows command-line program for checking TCP/IP configuration details is called IPCONFIG.

99. Answer: B. Maintenance kit

Explanation: A set of replacement parts for a printer is commonly referred to as a maintenance kit.

100. Answer: A. Print spooler

Explanation: A software that temporarily stores print jobs on the computer hard disk or in memory until the printer is ready to print them is called print spooler.