Test Bank for Complete CompTIA A+ Guide to PCs 6th Edition by Schmidt ISBN 0789749769 9780789749765

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Chapter 2 On the Motherboard

2.1 True/False Questions

1) PCIe cards fit in ISA expansion slots.
  Answer: FALSE
  Diff: 1

2) PCI adapters can install into a PCI or ISA expansion slot.
  Answer: FALSE
  Diff: 1

3) ISA adapters can install into a PCI expansion slot.
  Answer: FALSE
  Diff: 1

4) PCI adapters can install into a PCI-X expansion slot.
  Answer: TRUE
  Diff: 1

5) ISA is the oldest expansion slot that is still found in some computers.
  Answer: TRUE
  Diff: 1

6) PCIe is the most popular expansion slot in computers today.
  Answer: TRUE
  Diff: 1

7) CPU manufacturers include Intel, Motorola, and AMD.
  Answer: TRUE
  Diff: 2

8) A system clock determines such things as the maximum amount of motherboard memory, type of memory chips, the ability to support Universal Serial Bus, and the latest PCI connectivity.

Answer: FALSE

9) Cache memory is faster than RAM.

Answer: TRUE

10)A PC normally has more RAM on the motherboard than hard disk storage installed in the system.

Answer: FALSE

11)Software must be specifically written to take advantage of dual- or quad-core CPUs.

Answer: FALSE

12)The processor must be inserted into the appropriate-sized socket.

Answer: TRUE
Diff: 2

13)When installing a processor, the power supply should be turned off, but the power cord should stay attached.

Answer: FALSE
Diff: 2

14)After installing a processor for the first time, apply power and ensure the computer boots before installing a heat sink or fan.

Answer: FALSE
Diff: 2

2.2 Multiple Choice Questions

1) A special motherboard chip that executes instructions, performs math calculations, and coordinates input/output operations is called the
A) Microprocessor
B) Processor
C) CPU
D) All these answers are true.

Answer: D
Diff: 1

2) Major microprocessor manufacturers are
A) Apple, Gateway, and Dell
B) Intel, Motorola, and AMD
C) Maxtor, Seagate, and Sony
D) Microsoft, 3-Com, and Oracle

Answer: B
Diff: 2

3) PC stands for
A) Primary cache
B) Principle controller
C) Personal computer
D) Personal console

Answer: C
Diff: 1

4) Inside and outside the processor you find lines that are used to carry 0s and 1s. These lines are called a
A) Bit
B) Bus
C) Virtual bike
D) Path

Answer: B
Diff: 2

5) CPU stands for
    A) Central Processing Unit
    B) Control Performance Umpire
    C) Computer Processing Unit
    D) Coordinating Performance Unit

    Answer: A
    Diff: 2

6) Which type of cache memory is used first by the CPU if possible?
    A) L1
    B) L2
    C) L3
    D) L4

    Answer: A
    Diff: 2

7) To the processor, a character on the keyboard
    A) Appears as a series of 1s and 0s
    B) Is a picture image of the character
    C) Is a kilobyte in length
    D) Has a size of 1 bit

    Answer: A
    Diff: 2

8) A byte is made up of_____bits.
    A) 1
    B) 2
    C) 4
    D) 8

    Answer: D
    Diff: 1

9) A kilobyte is equivalent to
    A) Approximately 500 megabytes
    B) Approximately 1,000 bytes
    C) Approximately 1 gigabyte
    D) Approximately 32 bits

    Answer: B
    Diff: 2

10) 1M, 1,000,000 bytes, and 1024 kilobytes are all terms associated with a
    A) Melabyte
    B) Megabyte
    C) Milobyte
    D) Minkobyte

    Answer: B
    Diff: 2

11) From the following choices, select the one arranged in the order from lowest to highest:
   A) Bit, byte, kilobyte, megabyte, gigabyte, terabyte
   B) Terabyte, gigabyte, megabyte, kilobyte, byte, bit
   C) Exabyte, terabyte, kilobyte, megabyte, gigabyte
   D) Sadobyte, masobyte, pedobyte, arachnobyte

   Answer: A
   Diff: 2

12) The number of bits processed at one time is the processor's
   A) Letter size
   B) Word size
   C) Paragraph size
   D) Page size

   Answer: B
   Diff: 2

13) Mary opens the cover to her computer and looks at the motherboard. She notices what appear to be thin lines between the various expansion slots found on the motherboard. These lines are most likely the
   A) Cracks found on the motherboard
   B) Internal register lines
   C) Internal data bus
   D) External data bus

   Answer: D
   Diff: 2

14) Bits of data travel inside the processor on the
   A) External data bus
   B) PCI bus
   C) Internal data bus
   D) USB expansion bus

   Answer: C
   Diff: 2

15) Data travels to the processor on the
   A) External data bus
   B) Internal data bus
   C) Internal register
   D) Silicon pathway

   Answer: A
   Diff: 2

16) Data moves toward and away from the CPU on the_____, whereas data travels inside the CPU on the

   _____.
   A) High bus; low bus
   B) Peripheral exchange; central route
   C) Distal data path; proximal data path
   D) External data bus; internal data bus

   Answer: D
   Diff: 2

17) 2 to the 20th power, or 1,048,576, is equal to a
    A) Megabyte
    B) Gibibyte
    C) Kibibyte
    D) Metabyte

    Answer: A
    Diff: 2

18) As the size of the bus increases, performance of the computer should
    A) Decrease
    B) Increase
    C) Decelerate
    D) Is not affected

    Answer: B
    Diff: 2

19) 2 to the 30th power, or 1,083.841.924, is called a
    A) Mebibyte
    B) Gibibyte
    C) Kibibyte
    D) Metabyte

    Answer: B
    Diff: 3

20) Which component is located *outside* the CPU?
    A) Registers
    B) Chipset
    C) ALU
    D) I/O unit

    Answer: B
    Diff: 3

21) Which CPU unit performs calculations?
    A) Registers
    B) Chipset
    C) ALU
    D) I/O unit

    Answer: C
    Diff: 2

22) Some microprocessors have been designed with separate internal buses that operate at the same time.
    These separate internal buses are called
    A) Complimentary processors
    B) Pipelines
    C) Frequencies
    D) Channels

    Answer: B
    Diff: 2

23) You can assume that the processing speed of the CPU is faster using pipeline technology because
   A) One channel handles all the processing faster than multiple channels.
   B) The processor completes two or more command sequences at the same time.
   C) A pipeline in a processor has a larger word size than the rest of the processor.
   D) The processor uses multiple branches within the pipeline.

   Answer: B
   Diff: 3

24) What does a *64* on an AMD processor mean?
   A) 64GHz speed
   B) 6.4GHz speed
   C) 64-bit operating systems supported
   D) 64 processor pipelines

   Answer: C
   Diff: 2

25) Which processor speed is the
   fastest? A) 1GHz
   B) 2GHz C)
   833MHz D)
   900MHz

   Answer: B
   Diff: 3

26) Which type of computer would more likely use a BTX motherboard?
   A) Laptop
   B) Server C)
   Netbook
   D) Desktop
   E) Cell phone

   Answer: B
   Diff: 2

27) You type the following words on a screen: GO LADY VOLS! If the processor handles 32 bits at a time, what letters are input to the processor simultaneously?
   A) G
   B) GO
   C) GO L
   D) GO LA
   E) GO LADY VOLS!

   Answer: C
   Diff: 3

28) What type of CPU cooling uses some type of pump?
   A) Liquid and phase-change
   B) Thermal compound and thermal coupled
   C) Induction and rotary fan
   D) Auxiliary fan and thermal inductor

   Answer: A
   Diff: 2

29) Several processors have PGA sockets. PGA stands for
    A) Particle Graphic Accelerator
    B) Pentium Grid Access
    C) Pin Grid Array
    D) Professional Golf Association

    Answer: C
    Diff: 2

30) What socket type would be used on an Intel Core i7 -based computer?
    A) LGA 7775
    B) Slot 2
    C) Socket 478
    D) LGA 2011

    Answer: D
    Diff: 3

31) The Socket FM2 connector may be found in use with computers that have a
    A) Pentium II processor
    B) Celeron processor
    C) Core i7
    D) Fusion

    Answer: D
    Diff: 3

32) When replacing a CPU, which of the following is true?
    A) The CPU and motherboard socket must match.
    B) A motherboard can accept only one type of CPU.
    C) The CPU and BIOS must match.
    D) The CPU and heat sink or fan must be bought together for compatibility.

    Answer: A
    Diff: 2

33) Which of the following is NOT an example of a processor?
    A) Fusion
    B) BIOS
    C) Celeron
    D) Turon

    Answer: B
    Diff: 2

34) Which expansion slot would be used on an ATX motherboard?
    A) PCIe
    B) ExpressCard/34
    C) ExpressCard/54
    D) Mini-PCI

    Answer: A
    Diff: 1

35) Which technology can make a logical processor core appear as a physical processor core on the System Information page?
A) ExpressCard
B) Hyper-Threading
C) CardBus
D) Octacore

Answer: B
Diff: 2

36) PCI can send data in_____mode.
A) Super duplex
B) Full CPU power
C) Half duplex
D) Super memory

Answer: C
Diff: 1

37) PCIe is a [serial | parallel] bus?
A) Serial
B) Parallel

Answer: A
Diff: 3

38) How can you determine what CPU(s) are supported by a motherboard?
A) The CPU fits only one way.
B) If a ZIF socket is installed, it is Pentium or higher.
C) The motherboard documentation can provide this.
D) Every socket is clearly identified on the motherboard.

Answer: C
Diff: 2

39) What term is used to describe two CPUs in a single unit?
A) Dual-core
B) DUO
C) Quad-core
D) Bi-core

Answer: A
Diff: 2

40) Which components would be considered an "active" CPU cooling technology?
A) Heat sink
B) Additional case fans
C) Thermal paste/heat sink and processor fan
D) CPU fan monitoring and internal temperature monitoring

Answer: C
Diff: 2

41) What cooling technology would be the first element to dissipate heat from the processor?
    A) Heat sink
    B) Thermal compound
    C) Chipset
    D) Power supply

    Answer: B
    Diff: 2

42) What does quad core mean in relation of processors?
    A) The main CPU is clocked at four times the static rate.
    B) Four processors are installed in one or two sockets on the motherboard.
    C) Four pipelines are used inside the processor for simultaneous instruction execution.
    D) Four core system processes can be executed upon simultaneously.

    Answer: B
    Diff: 2

43) To help speed up 3-D graphics, consider
    A) A fast CPU with multiple pipelines
    B) Built-in 3-D instructions that software applications can use
    C) A good video adapter with a built-in processor and memory
    D) All these methods will speed up 3-D graphics.

    Answer: D
    Diff: 2

44) Which open specification is a 120-pin reversed PCI connector?
    A) ACR
    B) ExpressCard
    C) CardBus
    D) PCIe

    Answer: A
    Diff: 3

45) What expansion slot replaced AGP?
    A) AMD
    B) AGP2
    C) PCIe
    D) PCI-X

    Answer: C
    Diff: 2

46) When you press a key on the keyboard, data travels from the keyboard onto the __bus to the CPU.
    A) Backside
    B) Internal data
    C) External data
    D) External AGP

    Answer: C
    Diff: 2

47) The processor has cache memory inside the CPU called
   A) L1 cache
   B) L2 cache
   C) L3 cache
   D) L4 cache

   Answer: A
   Diff: 2

48) A megahertz is_____cycles per second.
   A) 100,000
   B) 1,000,000
   C) 1,000,000,000
   D) 1,000,000,000,000

   Answer: B
   Diff: 2

49) Which method may be used to determine the speed of a processor?
   A) Read the BIOS technical documentation.
   B) Right-click *My Computer* or *Computer* and select *Properties.*
   C) R ead it off the heat sink mounted on top of the CPU.
   D) Read it from the sticker attached to the outside of the computer.

   Answer: B
   Diff: 2

50) Which of the following devices commonly mount on top of the CPU to cool it?
   A) Surge protector
   B) Capacitor
   C) Heat sink
   D) Surge resistor

   Answer: C
   Diff: 1

51) The speed of a computer processor is measured in
   A) Megabits per second
   B) Nanoseconds
   C) Gigabytes
   D) Gigahertz

   Answer: D
   Diff: 1

52) A gigahertz is_____cycles per second.
   A) 100,000
   B) 1,000,000
   C) 1,000,000,000
   D) 1,000,000,000,000

   Answer: C
   Diff: 2

53) Which cooling solution would be the quietest?
   A) Liquid-based
   B) Additional case fans
   C) Thermal paste
   D) Lower air conditioning setting

   Answer: A
   Diff: 2

54) Which socket would be used for an AMD Opteron?
   A) LGA 775
   B) Socket A
   C) Socket F
   D) LGA1366

   Answer: C
   Diff: 3

55) What is the difference between a thermal pad and a thermal compound?
   A) There is no difference.
   B) The pad is a physical thing and the compound is a paste.
   C) The pad is thicker than the compound.
   D) Both require an adhesive, but the compound is messier.

   Answer: B
   Diff: 3

56) Where are additional fans commonly placed?
   A) On top of the processor
   B) On top of the chipset
   C) N ear the power supply or lower front part of the case
   D) Inside the power supply

   Answer: C
   Diff: 3

57) What is the purpose of thermal paste?
   A) It is used to clean adapter or memory module contacts.
   B) It is used to grease the bearings of the power supply and CPU fan.
   C) It is used to transfer heat from the CPU to the heat sink.
   D) It is used to provide heat protection for devices such as the CPU, chipset, and power supply.

   Answer: C
   Diff: 3

58) What is an advantage of having an SPGA over a PGA socket?
   A) It provides more heat dissipation.
   B) It enables a more powerful CPU to be inserted.
   C) It prevents the CPU pins from being bent during installation.
   D) It enables a computer to be virtualized.

   Answer: B
   Diff: 2

59) Buses, pipelines, cache, and word size
   A) Are unimportant in the overall performance of a computer
   B) Have an impact on computer speed
   C) Determine the speed of data as it travels on the World Wide Web
   D) Are related only to memory

Answer: B
Diff: 2

60) When the CPU sends data to a modem or receives data from the keyboard, the data travels from one location to another on the motherboard along routes called
   A) Beltways
   B) Paths
   C) Buses
   D) Trans-data highway

Answer: C
Diff: 2

61) The speed of a computer
   A) Is generally faster than the speed of the processor
   B) Is exactly the speed of the processor
   C) Is a result of several factors including memory, bus, and chipset speeds
   D) Depends upon the monitor being used

Answer: C
Diff: 2

62) The speed at which data travels from the CPU to various components on the mother board is called the
   A) Belt speed
   B) Path speed
   C) Bus speed
   D) Cache speed

Answer: C
Diff: 2

63) When you multiply the bus speed by a number called the multiplier, you determine the
   A) Cache speed
   B) Pipeline speed
   C) Jumper speed
   D) CPU speed

Answer: D
Diff: 2

64) An engineering professor teaches CAS at the university. Which expansion slot would be best for the graphics card in the professor's computer?
   A) PCI
   B) PCI-X
   C) AGP
   D) PCIe

Answer: D
Diff: 2

65) A CPU has a speed of 2GHz and a 266MHz bus. What is the multiplier?
   A) 2
   B) 4.5
   C) 5
   D) 7.5
   E) 9
   Answer: D
   Diff: 2

66) A bus has a speed of 400MHz and a multiplier of 8. What is the CPU speed?
   A) 320MHz
   B) 3.2GHz
   C) 32MHz
   D) 3.2MHz
   Answer: B
   Diff: 2

67) It is not easy to read the speed of an install CPU because
   A) It is so small.
   B) It is in another language.
   C) It is covered by a fan.
   D) All these answers are true.
   Answer: C
   Diff: 2

68) Bus frequency is the external rate data travels outside the microprocessor and is measured in
   A) Nanoseconds
   B) Megaseconds
   C) Megahertz
   D) Megabytes
   Answer: C
   Diff: 2

69) What setting when adjusted appropriately enables the motherboard to recognize the internal processor speed?
   A) Bus frequency multiple
   B) Number operations
   C) Cache memory
   D) Chipset multiplier
   Answer: A
   Diff: 2

70) The processor may have_____cache memory included inside the casing, but not part of the CPU.
   A) L4
   B) L3
   C) L2
   D) L1
   Answer: C
   Diff: 2

71) On-die cache describes
    A) L2 memory housed in the processor packaging
    B) An on state in which memory dies
    C) A processor built into a motherboard
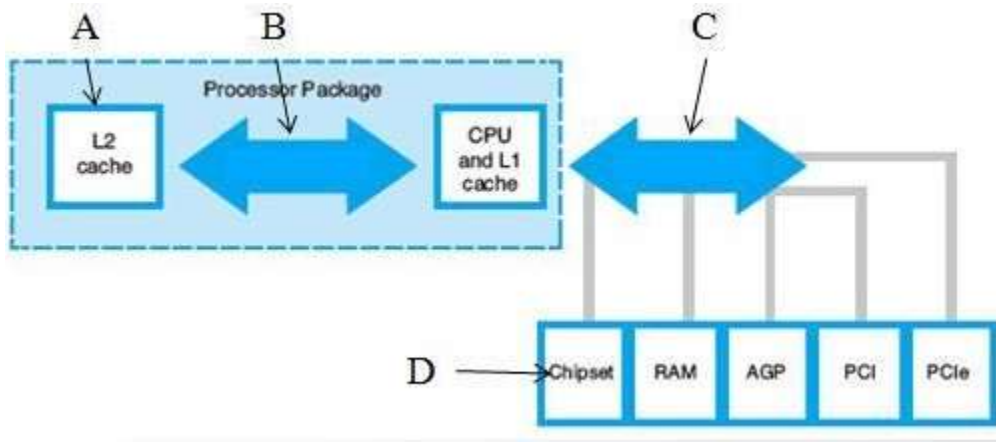   D) Memory On Dynamic Integrated Elements

Answer: A
Diff: 2

72) A computer with cache built in to the microprocessor plus memory built in to the processor packaging may have additional cache memory on the motherboard called:
    A) L3 cache
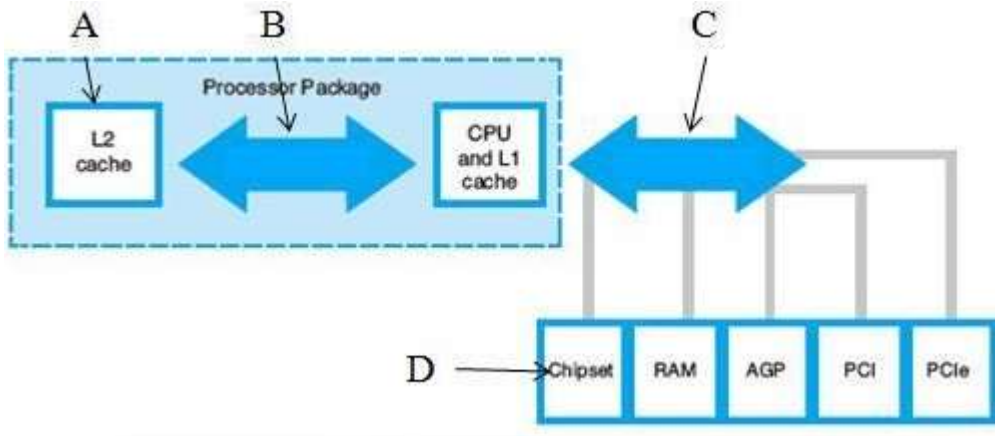   B) L2 cache
    C) L1 cache
    D) L cache

Answer: A
Diff: 2

73) In the figure, item B is pointing to the
    A) Back side bus
    B) Front side bus
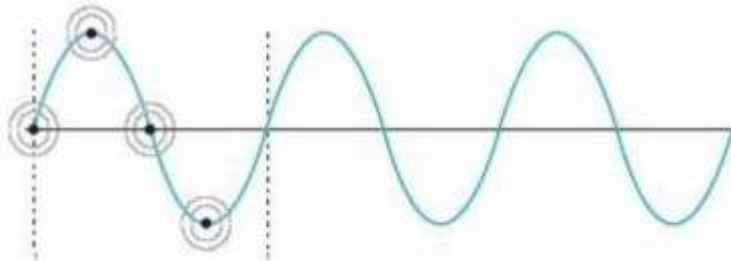   C) COAST module
    D) Overdrive chip

Answer: A
Diff: 2

74) In the figure, item C. is pointing to the
    A) Internal data path
    B) The part that controls how many USB ports can be on the motherboard
    C) Front side bus
    D) Back side bus

Answer: C
Diff: 2

75) What does the figure represent in terms of the CPU?
    A) How to convert analog to digital.
    B) How many times data is sampled in one clock cycle.
    C) How many bits can be sent at one time.
    D) How many times data is sent in one clock cycle.

Answer: D
Diff: 2

76) Which one of the following statements is true about DIB?
    A) The back side bus connects the chipset to the CPU.
    B) The front side bus connects the CPU to the L2 cache.
    C) The backside bus connects the chipset to the CPU.
    D) The backside bus connects the CPU to the L2 cache.

Answer: D
Diff: 2

77) Which storage unit holds the *least* amount of data?
    A) L1 cache
    B) Registers
    C) RAM
    D) Hard drive

Answer: B
Diff: 2

78) To discover what CPU a system can handle as an upgrade you need
    A) Motherboard documentation
    B) CPU documentation
    C) Hard drive documentation
    D) Case documentation

Answer: A
Diff: 2

79) Today's memory controllers are located..... (Select the best answer.)
   A) Inside the processor
   B) Inside the memory control hub
   C) Inside the GPU
   D) Inside the memory module(s)

   Answer: A
   Diff: 3

80) Which motherboard form factor would be used in a low profile workstation?
   A) NLX
   B) ATX
   C) BTX
   D) microATX

   Answer: A
   Diff: 3

81) Which technology was designed to enable CPU installation?
   A) Hyper-Threading
   B) HyperTransport
   C) ZIF
   D) SPGA

   Answer: C
   Diff: 2

82) What does the graphic represent?
   A) CPU
   B) A ZIF socket
   C) A chipset
   D) A motherboard

   Answer: B
   Diff: 2

83) To determine whether a motherboard can accept a faster processor, you should
   A) Look on the back of the current processor for upgrade information.
   B) Read the documentation for the motherboard.
   C) Buy a new processor, stick it in the motherboard, and see whether it works.
   D) Look at the motherboard and read the CPU size information beside the socket.

   Answer: B
   Diff: 2

84) Reference the figure. What is the component located under the fan?
   A) CPU
   B) RAM
   C) Chipset
   D) L1 cache

   Answer: A
   Diff: 2

85) Reference the figure. What are the two components shown?
   A) Dual CPUs
   B) Chipset
   C) ZIF sockets
   D) Heat sinks

   Answer: D
   Diff: 2

86) What is the name of the electronic component that provides timing signals to the motherboard?
   A) Clock
   B) Chipset
   C) CPU
   D) Memory controller

   Answer: A
   Diff: 2

87) What would you consider as three essentials for correctly installing a CPU on a motherboard?
   A) CPU documentation, motherboard documentation, and an antistatic strap
   B) A screwdriver, a voltmeter, and an antistatic strap
   C) A motherboard, a CPU, and a screwdriver
   D) An extractor, a ZIF socket, and CPU

   Answer: A
   Diff: 2

88) Which expansion slot would be characterized by the following: x8?
   A) AGP
   B) PCIe
   C) PCI
   D) PCI-X

Answer: B
Diff: 2

89) Which slot would be best for a gaming video card?
   A) PCI-X 10x
   B) AGP 4x
   C) PCIe x16
   D) 64-bit PCI-X

90) The ZIF in ZIF socket stands for
   A) Z-socket In Front
   B) Zero-Insertion Force
   C) Zone Integrated Friction
   D) Zip-It Free

Answer: B
Diff: 2

91) Changing the front side bus and or the multiplier to boost CPU speed is called
   A) Hot-rodding
   B) CPUing up
   C) Revving-up
   D) Overclocking

Answer: D
Diff: 2

92) A motherboard has no visible jumpers or switches. You might be able to set the multiplier by
   A) Running the Add New Hardware Control Panel
   B) Removing the multiplier crystal and replacing it with one that works with your CPU
   C) Adjusting the multiplier in the BIOS setup
   D) Using a screwdriver and turning the multiplier adjustment screw ¼ turn for each whole number

Answer: C
Diff: 2

93) When overclocking you should first adjust the
   A) Multiplier
   B) ROM BIOS
   C) System clock
   D) Bus speed
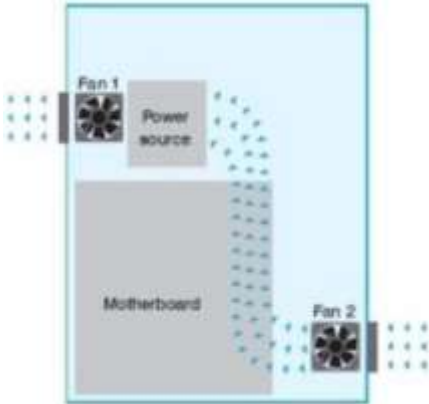
Answer: A
Diff: 2

94) All the following are true about overclocking EXCEPT
   A) Overclocking voids the CPU warranty.
   B) Overclocking works for all motherboards and CPUs.
   C) Overclocking can cause damage to other components on the motherboard.
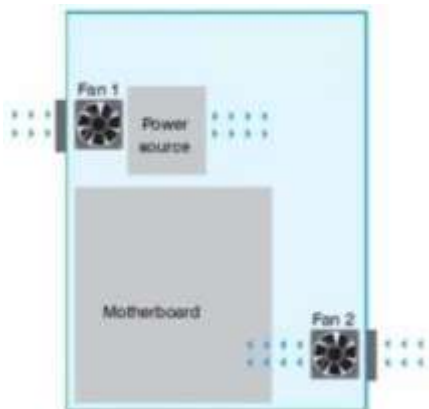   D) Overclocking can cause a system to hang.

   Answer: B
   Diff: 2

95) Consider the graphic. What statement is true?
   A) The graphic shows the correct air flow for an ATX motherboard.
   B) The graphic shows incorrect air flow for an ATX motherboard.
   C) The graphic shows the correct air flow for a liquid-cooled system.
   D) The graphic shows the incorrect air flow for a liquid -cooled system.

   Answer: A
   Diff: 2

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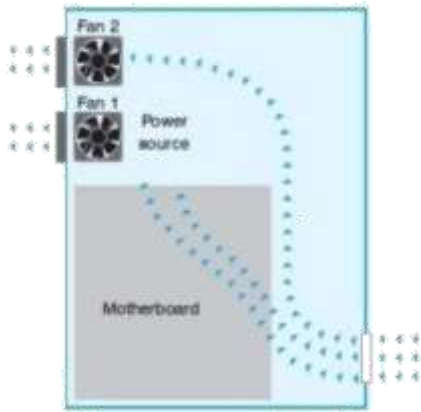   D) The graphic shows the incorrect air flow for a liquid -cooled system.

   Answer: B
   Diff: 2

97) Consider the graphic. What statement is true?
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Answer: A
Diff: 2

98) What type of laptop expansion card has a 52-pin connector?
    A) Mini PCIe
    B) Type II
    C) USB
    D) PCI

Answer: A
Diff: 4

99) An alternative to fans and heat sinks is
    A) An open case design
    B) A liquid cooled system
    C) Smaller CPUs
    D) A turbine

Answer: B
Diff: 2

100) The oldest expansion slot still in some computers today is_____.
    A) ISA
    B) EISA
    C) VL-bus
    D) MCA

Answer: A
Diff: 2

101) ISA, EISA, and MCA are
    A) The most commonly used PC expansion slots
    B) Outdated PC expansion slots
    C) Types of memory found on the motherboard
    D) Brands of microprocessors

Answer: B
Diff: 2

102) Expansion slots commonly found today include
   A) EISA, MCA, and ISA
   B) EISA, ISA, and PCI-E
   C) AGP, PCI, and PCI -E
   D) PGA, DIB, and RIM

   Answer: C
   Diff: 2

103) What is the most common problem with overclocking?
   A) Cooling.
   B) Applications cannot keep up.
   C) Insufficient power to the CPU.
   D) Other components cannot function properly.

   Answer: A
   Diff: 1

104) A technician must be familiar with the different architectures and buses because
   A) A customer may depend upon the technician for recommendations.
   B) A technician is responsible for repairing or replacing components.
   C) A technician must be able to configure adapters and devices for each bus.
   D) All these answers are true.

   Answer: D
   Diff: 2

105) What is the motherboard form factor?
   A) The motherboard size
   B) The CPUs allowed on the motherboard
   C) The method of controlling memory modules
   D) The customer satisfaction rating over a 1-year period

   Answer: A
   Diff: 1

106) HyperTransport is
   A) A method of connecting multiple Intel CPUs together
   B) The technology used with PCI-E transfers
   C) An AMD-designed high-speed bus
   D) A technology that enables PCI-X cards to work on the PCI-E bus

   Answer: C
   Diff: 2

107) The place to plug in an adapter card is called a(n)
   A) Device socket
   B) Peripheral receptacle
   C) Expansion slot
   D) ATP (Adapter Transfer Portal)

   Answer: C
   Diff: 2

108) Which expansion slot technology enables "lanes" to be assigned to an adapter?
   A) ISA
   B) MCA
   C) PCI
   D) PCI-X
   E) PCI-E

   Answer: E
   Diff: 2

109) Which statement is true about PCI, PCI -X, and PCIe?
   A) PCI can transmit and receive data simultaneously.
   B) PCI-X is a serial bus.
   C) PCI-E can operate in full duplex.
   D) PCI is backward compatible with PCI -E.

   Answer: C
   Diff: 2

110) Which technology is NOT normally associated with only laptops?
   A) AGP
   B) mini PCI
   C) PC Card
   D) Express Card

   Answer: A
   Diff: 2

111) Which of the following statements is true about PCIe adapters?
   A) An x1 PCIe slot accepts only an x1 adapter.
   B) PCIe sends 8 bits at a time.
   C) PCIe sends 64 bits at a time.
   D) Any PCIe adapter can have any number of lanes assigned (from 1 to 32).

   Answer: A
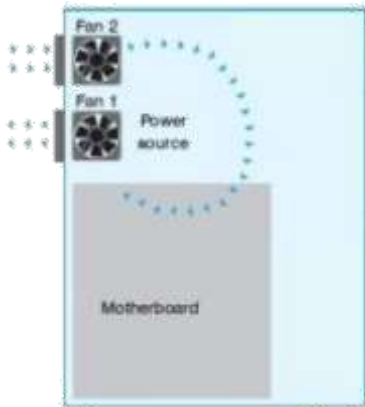   Diff: 2

112) In addition to the CPU, what two motherboard components sometimes have heat sinks?
   A) PCI bus and BIOS
   B) Chipset and I/O controller
   C) Integrated ports and BIOS
   D) Memory controller and BIOS

   Answer: B
   Diff: 3

113) Consider the graphic. What statement is true?
   A) The graphic shows the correct air flow for an ATX motherboard.
   B) The graphic shows incorrect air flow for an ATX motherboard.
   C) The graphic shows the correct air flow for a liquid-cooled system.
   D) The graphic shows the incorrect air flow for a liquid -cooled system.

   Answer: B
   Diff: 2

114) Consider the figure. The two motherboard components shown are examples of
   A) CPUs
   B) Chipsets
   C) Expansion slots
   D) ZIF sockets

   Answer: C
   Diff: 2

115) Why is AGP a better solution for video than previous PCI versions?
   A) Because it takes less heat
   B) Because the video subsystem is isolated
   C) Because it has its own memory controller
   D) Because it handles more bits at a time

   Answer: B
   Diff: 2

116) 32 bit 33MHz, 32-bit 66MHz, 64-bit 33MHz, and 64-bit 66MHz are four varieties of the
A) MCA architecture
B) ISA architecture
C) VL bus
D) PCI bus

Answer: D
Diff: 3

117) Which one of the following is an advantage of the PCI -X bus?
A) It is portable and works on Apple and PC-compatible computers.
B) It releases the microprocessor from all processing work.
C) It is backward compatible with and faster than earlier PCI buses.
D) It transmits data more accurately than earlier architectures.

Answer: C
Diff: 3

118) From the following choices, select the bus or architecture with the greatest power and adaptability.
A) DisplayBus
B) PCIe
C) ISA
D) AGP

Answer: B
Diff: 2

119) Consider the figure. The technology shown is for
A) PC Card
B) ExpressCard
C) Mini PCI
D) PCIe

Answer: B
Diff: 2

120) All the following statements about the PCI bus are true EXCEPT
A) PCI-X data and PCIe data travel on separate connections.
B) PCI is a platform available for the Apple and PC.
C) PCI slots can transmit 32- or 64-bits at a time.
D) PCI slots are configured through hardware switches and jumpers.

Answer: D
Diff: 3

121) What are the ExpressCard types?
   A) A, B, and C
   B) 1 and 2
   C) /34 and /54
   D) I, II, and III
   Answer: C
   Diff: 2

122) The_____motherboard connector is for an adapter that can perform both sound and modem
   functions.
   A) AGP
   B) USB
   C) AMR
   D) CNR
   Answer: C
   Diff: 3

123) The_____motherboard connector is for an adapter that can perform both sound, modem, and
   network card functions.
   A) AGP
   B) USB
   C) AMR
   D) CNR
   Answer: D
   Diff: 3

124) John bought an AGP 4X video adapter; however, when John read the reference manual that came
   along with the adapter he discovered that
   A) The AGP adapter card used the PCI 4 slot.
   B) It would work only if his motherboard supported the 4X or 8X mode.
   C) An AGP 4x video adapter required a 10MHz bus and at least 256Kb of L3 cache.
   D) Both B and C
   Answer: B
   Diff: 3

125) PCI-X is being replaced by
   A) AGP
   B) USB
   C) PCI-Y
   D) PCIe
   Answer: D
   Diff: 2

126) What standard is 32-bit 33MHz and enables PCI upgrades and interface cards to be added to a laptop
   computer, docking station, and even printers?
   A) PC Card
   B) ExpressCard
   C) Mini PCI
   D) PCIe
   Answer: C
   Diff: 2

127) HyperTransport is the I/O serial architecture developed by
A) Dell
B) AMD
C) IBM
D) Compaq/Hewlett-Packard

Answer: B
Diff: 2

128) The best way to determine what chipset is installed on a motherboard is to
A) Contact Intel.
B) Contact the motherboard manufacturer.
C) Look in the motherboard documentation.
D) Look on the top of the CPU for the code and then research on the Internet.

Answer: C
Diff: 3

129) Which of the following statements is FALSE concerning the chipset?
A) A chipset controls the maximum amount of memory recognized on the motherboard.
B) Any motherboard can use any chipset.
C) A chipset works with the processor.
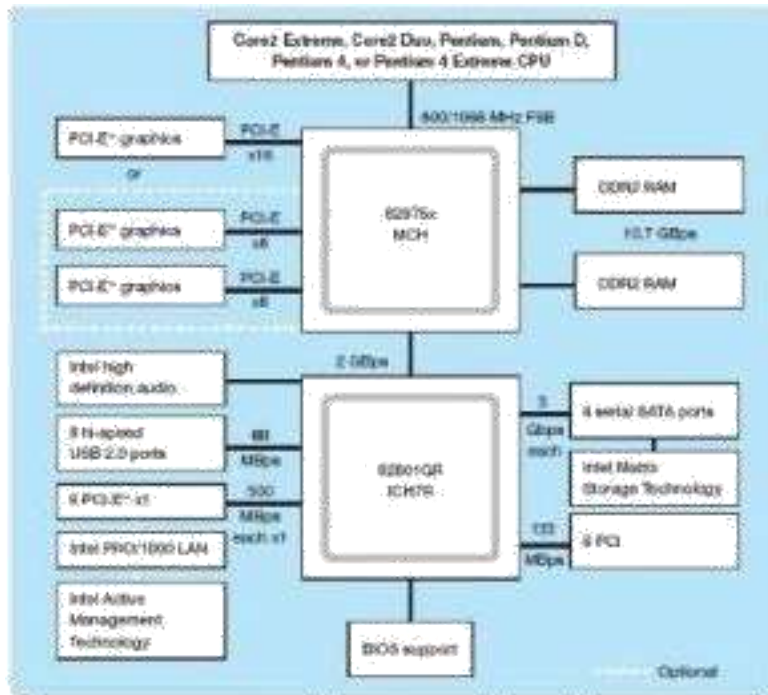D) A chipset determines what ports a motherboard can support.

Answer: B
Diff: 2

130) The motherboard form factor must match
A) The chipset
B) The CPU
C) The case
D) The memory module design

Answer: C
Diff: 2

131) The graphic is an example of a(n)
   A) CPU
   B) Memory subsystem
   C) ALU
   D) Chipset

   Answer: D
   Diff: 2

132) Replacement motherboards do not normally come with
   A) A CPU socket
   B) RAM
   C) A chipset
   D) Expansion slots

   Answer: B
   Diff: 2

133) Replacement motherboards most often do not come with
   A) A CPU
   B) A clock
   C) A chipset
   D) Expansion slots

   Answer: A
   Diff: 2

134) Which of the following will NOT help when troubleshooting the motherboard?
   A) Reseat the CPU.
   B) Remove all unnecessary adapters and external devices.
   C) Check the battery.
   D) Power the monitor off and back on again.

   Answer: D
   Diff: 2

135) What is a benefit of active listening?
   A) Enables you to solve a problem faster
   B) Enables the customer to control the conversation
   C) Allows the customer to feel in control
   D) Enables more billable hours, which helps with business bottom lines

   Answer: A
   Diff: 2

136) The principal chips on the motherboard that work with the CPU are known as a
   A) Motherboard set
   B) Principle set
   C) Support set
   D) Chipset

   Answer: D
   Diff: 2

137) Intel 975X Express that controls the maximum amount of motherboard memory, the type of RAM chips, and what other things the motherboard supports is an example of a
   A) BIOS
   B) Form factor
   C) Chipset
   D) Module

   Answer: C
   Diff: 2

138) The size of a computer motherboard is known as its
   A) Visual Interface Size (VIS)
   B) Hardsize
   C) Area platform
   D) Form factor

   Answer: D
   Diff: 2

139) A term to describe when a computer technician pays close attention to what the customer is saying is
   A) Active listening
   B) Proactive
   C) Polite
   D) Protocol

   Answer: A
   Diff: 2

140) ATX, NLX, FlexATX, and BTX are terms associated with
   A) CPUs
   B) Chipsets
   C) Motherboards
   D) ZIF sockets

   Answer: C
   Diff: 2

141) When upgrading a computer, you should consider
   A) The amount of memory the motherboard allows
   B) The form factor of the motherboard
   C) The motherboards supported by the chipset
   D) All of these

   Answer: D
   Diff: 2

142) A new CPU is being installed. What is applied directly to the CPU to attach a heat sink?
   A) Cooling liquid
   B) Thermal compound
   C) Heat filter pad
   D) Retaining screws
   E) Super glue or another permanent adhesive

   Answer: B
   Diff: 2

143) You suspect the CPU is overheating. Which of the following will you do next?
   A) Replace the CPU.
   B) Add thermal compound between the CPU and heat sink.
   C) Add an additional computer fan.
   D) Power down the computer and allow it to cool.

   Answer: D
   Diff: 2

144) Which of the following could cause a computer to automatically reboot?
   A) An overheating CPU
   B) A CPU that has the wrong type of thermal compound installed
   C) The wrong chipset was installed on the motherboard
   D) BIOS setting changes that were not saved

   Answer: A
   Diff: 2

145) A student who has not read Chapter 2 is confused with all the terms all the other students use as they
   discuss the homework questions before class. Which term has nothing to do with internal processor
   operations?
   A) Dual core
   B) Throttling
   C) I/O port
   D) Hyper-Threading
   E) Back side bus

   Answer: C
   Diff: 2

146) A 2GHz laptop is running at 1.2GHz. This is an example of …
   A) Improper BIOS configuration
   B) Throttling
   C) CPU overheating
   D) Insufficient RAM for the work being done

   Answer: B
   Diff: 2

147) Which standard enables laptop computers to be expanded via an expansion slot?
   A) PCIe
   B) AGP
   C) ExpressCard
   D) HyperTransport

   Answer: C
   Diff: 2

148) Which standard enables PCI laptop upgrades via a motherboard expansion slot?
   A) Mini-PCI
   B) PCIe
   C) ExpressCard
   D) HyperTransport

   Answer: A
   Diff: 2

149) What laptop technology can directly connect to PCIe and USB ports and has two physical sizes for the adapters that use this technology?
   A) ExpressCard
   B) Mini-PCI
   C) PCI
   D) CardBus

   Answer: A
   Diff: 2

150) After you power up a computer, it performs a basic test of the individual hardware components. The test is called a
   A) PREP
   B) BIOS
   C) POST
   D) RAM

   Answer: C
   Diff: 1

151) What is the primary difference between a laptop CPU and a desktop CPU?
   A) L2 cache is not used on laptops.
   B) L1 cache is not used on laptops.
   C) The laptop power consumption is less.
   D) Desktop CPUs have heat sinks, whereas laptop CPUs do not.

   Answer: C
   Diff: 3

152) What does the /54 mean on an ExpressCard adapter?
   A) Speed
   B) Size
   C) CPU type
   D) Amount of memory

   Answer: B
   Diff: 2

153) What technology enables one computer to operate as if it were two or three computers?
   A) Hyper-Threading
   B) HyperTransport
   C) Virtualization
   D) Overclocking

   Answer: C
   Diff: 1

154) What is one benefit of virtualization?
   A) Reduced space required for hardware
   B) Reduced hardware requirements
   C) Lower software costs
   D) More efficient use of CPU power

   Answer: A
   Diff: 1

155) Which virtualization product is found within Windows 7?
   A) Hyper-V
   B) VMWare Workstation
   C) VMWare Server
   D) Virtual PC

   Answer: D
   Diff: 2

156) Where are CardBus interfaces commonly found?
   A) Docking station
   B) Printer
   C) Laptop
   D) Projector

   Answer: C
   Diff: 2

157) What part would most likely be upgraded by an ExpressCard?
   A) Wireless NIC
    B) Keyboard
   C) Hard drive
   D) RAM

   Answer: A
   Diff: 2

158) Which device would be found in the mini PCIe form factor?
   A) Wireless NIC
   B) USB device
   C) PC Card
   D) ExpressCard

   Answer: A
   Diff: 2

159) Which of the following methods is the common configuration method for PCIe adapters?
   A) Switches and jumpers
   B) Reference disk
   C) Plug and play
   D) Software disk

   Answer: C
   Diff: 2

160) To verify that a PC Card is installed properly with Windows, you may use
   A) The registry
   B) PC Steering Window
   C) Device Manager
   D) Advanced Setup

   Answer: C
   Diff: 2

161) Another name for PC Card is_____.
   A) PCMCIA
   B) A smart card
   C) Mini-PCI
   D) Flash card

   Answer: A
   Diff: 2

162) What part of the traditional chipset is responsible for coordinating data flow between a SATA hard drive
   and a laptop processor?
   A. North bridge
   B. ExpressCard/54
   C. South bridge
   D. PC Card
   E. Mini PCIe

   Answer: C
   Diff: 2

2.3 Multiple Answer Questions

1) Which **three** problems might occur as a result of overclocking?
   A) Applications crash
   B) CPU fan cannot run as fast as the processor
   C) System fails to boot
   D) Hard drive fails
   E) Optical drive runs constantly
   F) Overheating

   Answer: A, C, F
   Diff: 2

2) Which **two** motherboards could be used in an ATX case?
   A) ATX
   B) BTX
   C) maxATX
   D) microATX
   E) superATX
   F) semiATX

   Answer: A, D
   Diff: 2

3) What are **two** Intel processors?
   A) Fusion
   B) Atom
   C) Core to the Max
   D) Eve
   E) Centrino

   Answer: A, E
   Diff: 2

4) What are **two** good questions to ask a customer who wants to upgrade the processor on an older motherboard?
   A) Can the motherboard handle a newer processor?
   B) Is the computer hot to the touch?
   C) Why do you think you need a new processor?
   D) Does the computer boot?
   E) How often do you use your computer?

   Answer: A, C,
   Diff: 2

5) What are **three** symptoms of a processor problem?
   A) You smell a burning odor
   B) The computer shows a blinking cursor in the upper-left corner
   C) You smell an order of sour lemons
   D) The system boots briefly and then shuts down
   E) An error code appears
   F) The computer plays tones of increasing intensity

   Answer: A, D, E
   Diff: 2

6) What are **two** ways to determine whether additional case fans are needed?
   A) Applications load slowly
   B) Check BIOS internal temperature readings
   C) System crashes sporadically
   D) Hard drive fails
   E) Optical drive runs constantly

   Answer: B, C,
   Diff: 2

7) Which **three** PCIe cards would work in a PCIe x8 expansion slot?
   A) PCIe x1
   B) PCIe x2
   C) PCIe x3
   D) PCIe x4
   E) PCIe x6
   F) PCIe x7

   Answer: A, B, D
   Diff: 2

8) Which **two** expansion slots would most likely be used by a video card in a gaming computer?
   A) ISA
   B) PCI
   C) PCI-X
   D) AGP
   E) PCIe x16
   F) PCIe x64

   Answer: D, E
   Diff: 2

9) Which two components would be controlled by the north bridge?
   A) Hard drive
   B) USB ports
   C) Network card
   D) High definition audio
   E) RAM
   F) PCIe graphics

   Answer: E, F
   Diff: 2

10) Which devices can be installed with power applied to the computer? (Pick 3.)
    A) ExpressCard
    B) PS/2 port-attached device
    C) USB device
    D) PCIe adapter
    E) NIC cable

    Answer: A, C, E
    Diff: 3

11) Which components must match? (Select any that apply.)
    A) CPU to processor socket
    B) CPU to type of video port
    C) Motherboard to processor
    D) Chipset to maximum number of USB ports
    E) Chipset to motherboard
    F) BIOS to keyboard type

    Answer: A, C, D, E
    Diff: 3

2.4 Matching Questions

1) Match the AMD processor family type on the left with the target market on the right.

Phenom _____
Sempron_____
Turion_____
Athlon _____

A. Laptops
B. High-end workstations
C. General usage workstations
D. Single- or multi-core desktops and notebooks

Answer: B, C, A, D

Diff: 2

2) Match the term on the left with the description on the right.

Terabyte _____

Kilobyte_____
Mebibyte_____
Byte _____

Bit_____
Kibibyte _____

A. 8 bits
B. 1,024
C. 1 or 0
D. Approximately 1 thousand bytes
E. Approximately 1 trillion bytes
F. 1,048,576

Answer: E, D, F, A, C, B

Diff: 2

3) Match the cache type on the left to the description on the right.

L1 _____
L2_____
L3 _____

A. Part of the CPU
B. Found on server motherboards
C. On-die cache

Answer: A, C, B

Diff: 2

4) Designate the CPU model on the left as manufactured by either Intel or AMD.

   Core2 _____

   Turion _____

   Opteron_____

   Centrino_____

   Atom_____

   Phenom_____

   FX _____

   Core i5 _____

   A. Intel

   B. AMD

   Answer: A, B, B, A, A, B, B, A

   Diff: 2

5) Match the term to the
   definition. ISA _____
   ExpressCard_____
   PCI _____
   PCIe _____
   A. Primarily used in laptops
   B. The oldest expansion slot type
   C. A 64-bit standard

   D. Has x1, x2, x4, x8, and x16
   slots Answer: B, A, C, D
   Diff: 2

2.5 Fill-in-the-Blank Questions

1) The main chip found on the motherboard that executes software instructions is the_____.
   Answer: CPU, processor, microprocessor
   Diff: 3

2) In computer technology, a 1 or a 0 is a/an_____.
   Answer: bit
   Diff: 1

3) A combination of eight 1s and 0s is a/an_____.
   Answer: byte
   Diff: 1

4) Approximately 1,000 (one thousand) bytes is a/an
   _____. Answer: kilobyte, kB
   Diff: 2

5) Approximately 1,000,000 (one million) bytes is a/an
   _____. Answer: megabyte, MB
   Diff: 2

6) Approximately 1,000,000,000 (one billion) bytes is a/an
   _____. Answer: gigabyte, GB
   Diff: 2

7) Approximately 1,000,000,000,000 (one trillion) bytes is a/an
_____. Answer: terabyte, TB

8) The term_____is used to describe the data delivery rate for adapters.
Answer: bus speed

9) Reducing the clock frequency to reduce power consumption and/or heat is known as_____.
Answer: CPU throttling, throttling

10) The rate of transfer between the processor and motherboard components is known as the_____.
Answer: FSB, front side bus

11) The rate of transfer between cache located on the processor die and the processor itself is known as the
_____.
Answer: back side bus, backside bus

12) A processor speed is measured in_____.
Answer: gigahertz, GHz

13) A more technical term for what most call the motherboard speed is
_____. Answer: FSB, front side bus

14) _____is the type of memory that has always been found inside the
processor. Answer: L1 cache

15) The type of memory that is not inside the processor but is located inside the processor housing is known
as_____cache.
Answer: L2

16) When L1 and L2 cache are include with the CPU or in the processor packaging, any cache installed on
the motherboard is known as_____cache.
Answer: L3

17) Processor speed equals bus speed times the_____.
Answer: multiplier

18) _____is when an Intel CPU is processing two sets of instructions at the same time.
Answer: Hyper-Threading, HyperThreading, HT

19) A/AN_____socket has a lever beside it to facilitate CPU insertion and
removal. Answer: ZIF

20) Raising the ZIF lever is used when_____a CPU because it lifts the CPU out of the socket.
Answer: removing
Diff: 2

21) Besides the processor, another part of the motherboard that frequently has heat sinks attached and controls what type and the number of expansion slots allowed on the motherboard is the_____.
Answer: chipset
Diff: 2

22) Approximately 1,000,000 (one million) bytes is a/an_____.
Answer: megabyte, MB
Diff: 2

23) With a_____, fluid is pumped through the heat sink and throughout the computer to cool it. Answer: liquid cooling system, liquid cooled system
Diff: 2

24) Increasing processor speed beyond the speed the processor is advertised is known as_____.
Answer: overclocking
Diff: 2

25) The oldest expansion slot type is_____.
Answer: ISA
Diff: 2

26) An upgrade to PCI that is backward compatible with older versions but supports speeds up to 1066MHz is_____.
Answer: PCI-X
Diff: 2

27) A PCIe x4 slot can assign the card inserted into the slot up to_____transfer lanes.
Answer: 4, four
Diff: 2

28) Some PCIe slots have a/an_____that must be pushed to release the adapter to remove it.
Answer: lever, release lever
Diff: 2

29) Two types of ExpressCards are_____and_____.
Answer: /34, /54
Diff: 2

30) The_____works with the processor and determines whether the motherboard can support one or two PCIe cards.
Answer: chipset
Diff: 2

31) Common_____manufacturers include Intel, AMD, Motorola, Samsung, NVIDIA, Qualcomm, and VIA Technologies.
Answer: processor, CPU, microprocessor
Diff: 2

32) Bill, the best technician at a computer store, is listening to a customer. While listening Bill asks questions to clarify the problem and nods his head occasionally to show he is paying attention. Even though Bill's cell phone rings, he ignores the call. Bills is using_____techniques.
Answer: active listening
Diff: 2

33) _____is a technique that focuses on the customer when they are talking.
Answer: Active listening
Diff: 2

34) When actively listening to a customer, you maintain good_____contact when you are not taking notes.
Answer: eye
Diff: 2

2.6 Essay Questions

1) Using good grammar, list at least three recommendations to remember when upgrading or replacing a motherboard.
Answer: Answers will vary, but some things to keep in mind when upgrading a motherboard include the

following: Why is the computer being upgraded? Which type of adapters and how many of them are needed? Are there any devices that currently require an adapter that could plug directly into an upgraded motherboard? What chipset does the new motherboard include? Will the new motherboard fit in the case of the computer to be upgraded? Does the new motherboard allow for future processor upgrades? How much RAM does the new motherboard allow? How many expansion slots are needed? Does the new motherboard have this many? What types of expansion slots are needed and does the new motherboard have those?
Diff: 2

2) Using good grammar, describe why troubleshooting a processor problem is difficult.

Answer: Answers will vary, but a sample answer follows: A processor problem can be an intermittent problem, and intermittent problems are hard to diagnose. For example, a processor problem can exhibit the symptom of randomly rebooting or applications crashing. Many other things besides the processor can also cause these symptoms.
Diff: 2

3) Using good grammar, describe a minimum of three active listening techniques.

Answer: Answers will vary, but a sample answer follows: Active listening involves having a positive engaged professional attitude when talking and listening to customers. To do active listening, the technician must focus on what the customer is saying. This includes ignoring people and conversations around the customer and ignoring electronic devices such as cell phones or tablets. Participate in the conversation by occasionally nodding, making comments such as *I see*, and using positive body language such as maintaining good eye contact, leaning forward slightly, or taking notes.
Diff: 2

4) Using good grammar, describe three things that frequently stop a technician from actively listening to customers.

Answer: Answers will vary, but a sample answer follows: The technician is commonly rushed, is thinking of other things including the customer's problem, thinks he knows the solution before the customer finishes explaining the problem, or is more interested in the technical problem than with the customer. For these reasons, a technician commonly is not a good listener.
Diff: 2