A+ Core Hardware Service Technician (2003)
220-301

Demo Version
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The whole study guide is arranged according to exam objectives. This study guide is divided into six Parts. Each part contains the following name and number of questions as shown in the table.

Part Name	Questions
1. Installation, Configuration and Upgrading	150
2. Diagnosing and Troubleshooting	90
3. Preventive Maintenance	16
4. Motherboard, Processors, Memory	63
5. Printers	27
6. Basic Networking	48

Total   **394**

Note: This is a sample demo of the original study guide. It contains only fifty seven questions from first, second, and forth part.

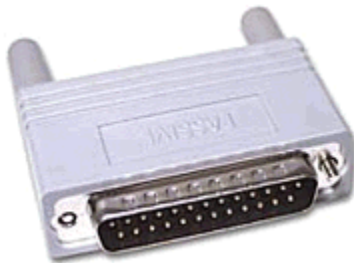# Part 1 Installation, Configuration, and Upgrading

Question 1.
Which of the following is EXTERNAL SCSI-1 C50M ACTIVE TERMINATOR

A.

A.

B.

C.

Answer: A

Explanation:
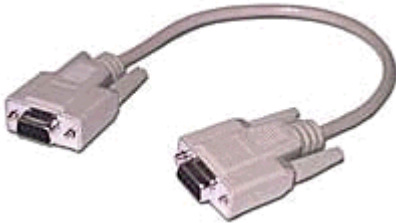Choice A is EXTERNAL SCSI-1 C50M ACTIVE TERMINATOR
Choice B is EXTERNAL SCSI DB25M PASSIVE TERMINATOR
Choice C is FIREWIRE 4-pin MALE to 6-pin FEMALE ADAPTER
Choice D is EXTERNAL SCSI DB25M/F PASS-THROUGH ACTIVE TERMINATOR

Question 2.
Which of the following is a DB25M/F NULL MODEM CABLE?

A.

B.

C.

D.

 Answer: C

Explanation:
Choice C is a DB25M to DB9F NULL MODEM CABLE.
Choice A is a DB9 F/F NULL MODEM CABLE.
Choice B is a DB25 M/F NULL MODEM CABLE.
Choice D is a DB25 M/M NULL MODEM CABLE.

Question 3.
Most commonly used RAID levels are (Choose Three).

    A. RAID 0
    B. RAID 1
    C. RAID 2
    D. RAID 5

Answer: A, B, D

Explanation:
RAID-0. This technique has striping but no redundancy of data. It offers the best performance but no fault-tolerance.

RAID-1. This type is also known as disk mirroring and consists of at least two drives that duplicate the storage of data. There is no striping. Read performance is improved since either disk can be read at the same time. Write performance is the same as for single disk storage. RAID-1 provides the best performance and the best fault-tolerance in a multi-user system.

RAID-5. This type includes a rotating parity array. RAID-5 stores parity information but not redundant data (but parity information can be used to reconstruct data). RAID-5 requires at least three and usually five disks for the array. It's best for multi-user systems in which performance is not critical or which do few write operations.

Question 4.
Which of the following IDE setting is for a slave drive?

A.

B.

Answer: B

Explanation:
An IDE disk with no jumper can be used as a slave drive.

Question 5.
PIO stands for

    A. Power input output.
    B. Processor integrated objects.
    C. Programmed Input/Output
    D. Personal Integrated objects

Answer: C

Explanation:
Programmed Input/Output (PIO) is a way of moving data between devices in a computer in which all data must pass through the processor.

Question 6.
PIO specifies how many transfer rates?

    A. 1
    B. 2
    C. 3
    D. 4

Answer: C

Explanation:
The Advanced Technology Attachment/Integrated Drive Electronics standard specifies three PIO data transfer rates (mode 0 at 3.3 MBps, mode 1 at 5.2 MBps, and mode 2 at 8.3 MBps).

Question 7.
PIO mode 0 transfer rate is

    A. 3.3MBps
    B. 5.2MBps
    C. 8.3 MBps
    D. 10 MBps

Answer: A

Explanation:
The Advanced Technology Attachment/Integrated Drive Electronics standard specifies three PIO data transfer rates (mode 0 at 3.3 MBps, mode 1 at 5.2 MBps, and mode 2 at 8.3 MBps).

Question 8.
Which I/O port does the secondary IDE controller use?

A. 134H
B. 168H
C. 170H
D. 1F0H

Answer: C

Explanation:
Primary IDE Channel: 1F0-1F7
Secondary IDE Channel: 170-177

Question 9.
How many IDE controllers are typically built into an ATX motherboard?

A. 1
B. 2
C. 4
D. 8

Answer: B

Explanation:
ATX motherboards have 2 built-in IDE controllers.

Question 10.
What is the function of an Energy Star-Compliant monitor?

A. Used only with fast processors
B. Same as standard monitor type
C. Switches to low power status when signal does not change
D. Consumes less power than other monitors while powering up.

Answer: C

Explanation:
It saves power by switching to low power status when the video signal is constant.

Question 11.
How would an ID logical 3 be set on a three-bit jumper block on a SCSI hard disk drive?

A. 010
B. 011
C. 111
D. 101

Answer: B

Explanation:
3 decimal is 011 binary (4*0+2*1+1*1=3).

Question 12.
How many 168-pin DIMMs are required per memory bank?

A. 1
B. 2
C. 6
D. 8

Answer: A

Explanation:

A single 168 Pin DIMM is used for every memory bank.

Question 13.
How many devices does USB support?

A. 32
B. 64
C. 127
D. 256

Answer: C

Explanation:
127 devices is theoretically support on a single USB chain.

Question 14.
How is the LCD on a laptop powered?

A. 120VAC
B. 120VDC
C. Low voltage DC
D. Low voltage AC

Answer: C

Explanation:
Like in a desktop, the power supply supplies low voltage DC.

Question 15.
What is the default I/O port for COM2?

A. 2E8H.
B. 3E8H.
C. 2F8H.
D. 3F8H.

Answer: C

Explanation:
COM2 uses I/O address 2F8H.
Remember:
COM1: 3F8
COM2: 2F8
COM3: 3E8
COM4: 2E8

Question 16.
Which of the following are associated with ROM? (Choose Three)
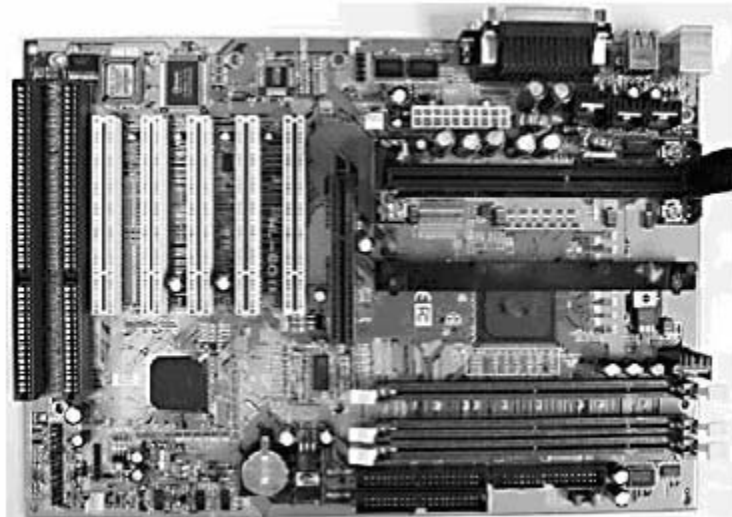
A. DMA
B. MBR
C. BIOS
D. POST
E. CMOS

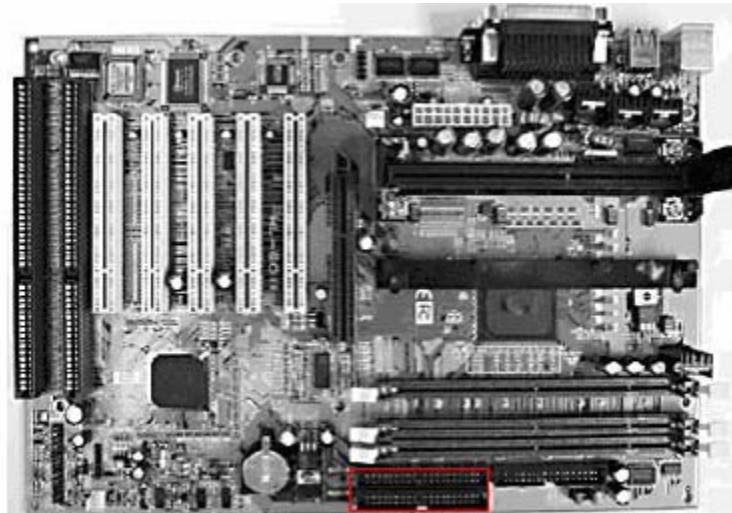**Explanation:**
The POST process is hardcoded and stored in ROM.
The instructions of the BIOS program are stored in ROM. The BIOS program stores it settings in CMOS.

Question 17.
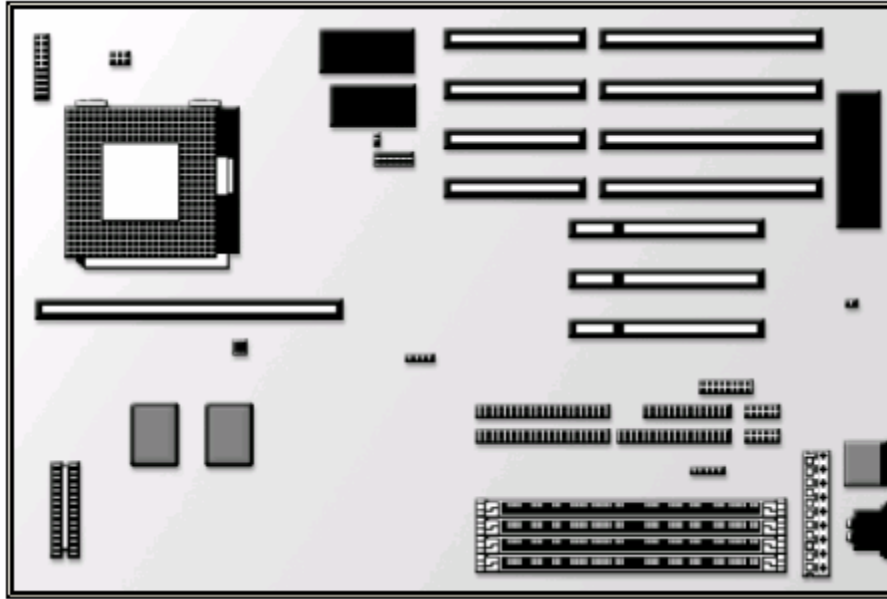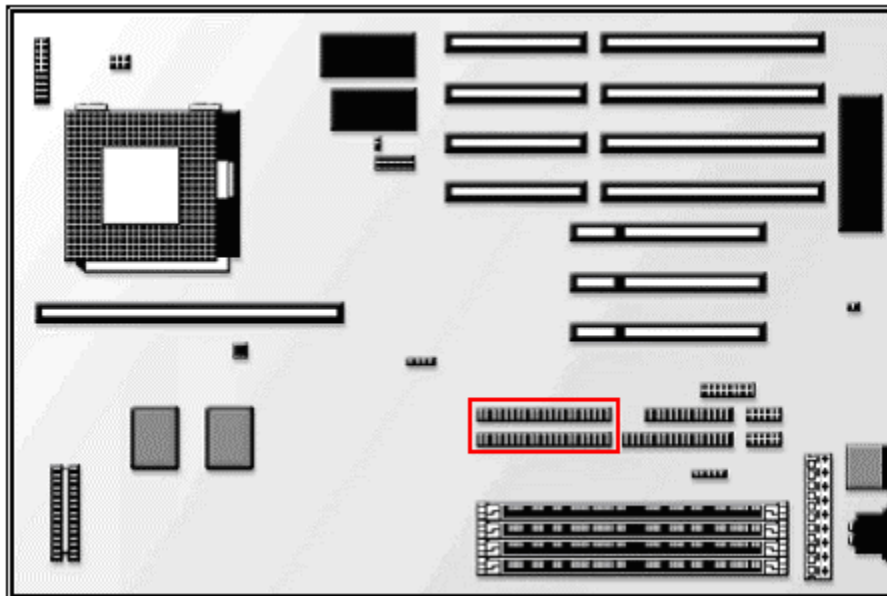Click the area on the graphic that shows the IDE ports?

Answer:

Question 18.
Click the area on the graphic that shows the IDE ports?

Answer:

Question 19.
What are the correct combinations of COM ports and IRQ? (Choose Two)

A. COM1 and COM2, IRQ5
B. COM3 and COM4, IRQ2
C. COM1 and COM3, IRQ4
D. COM1 and COM3, IRQ3
E. COM2 and COM4, IRQ3

Answer: C, E

Explanation:
COM1 and COM3 use IRQ4.
COM2 and COM4 use IRQ3.

Question 20.
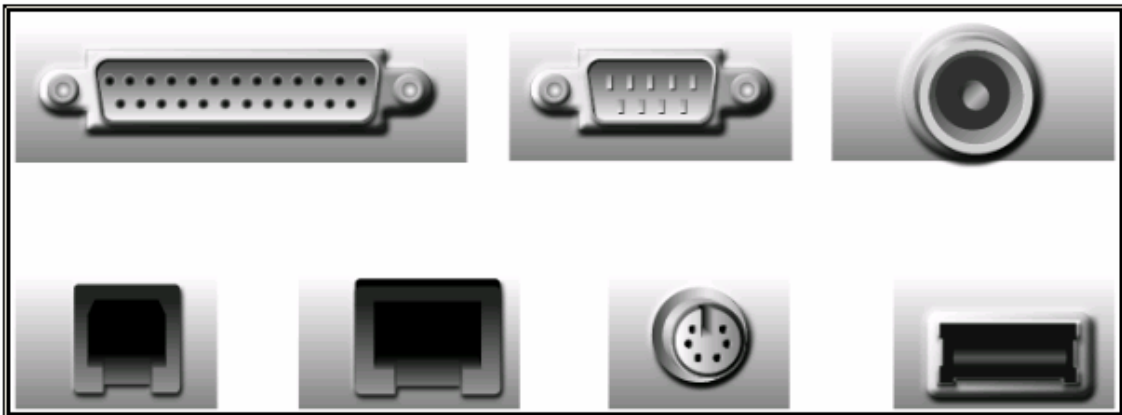Click the area on the graphic that shows the BNC connector?
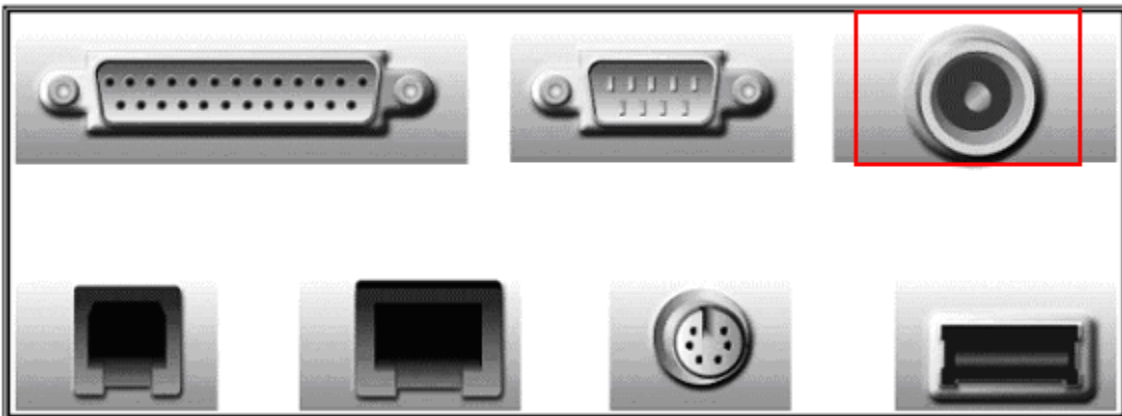

Answer:

Explanation:
Somewhat similar to the TV antenna connector.

Question 21.
Click the area on the graphic that shows the BNC connector?

Answer:

Question 22.
What does the BIOS do when a plug and play card is installed?

A. Looks for the manufacturer of the card.
B. Checks the processor ID for compliance.
C. Disables the other cards until the new card is installed.
D. Consults the ESCD to determine which system resources are available and needed for the card.

Answer: D

Explanation:
Every PnP BIOS keeps a list of all system resources used, usually on the CMOS or the flash ROM. This storage area is often called ESDC.

Part 2 Diagnosing and Troubleshooting

Question 1.
The customer is complaining that the program applications being displayed on the screen are missing lines, details and other graphics. How should you change the setting?

A. Reduce hard ware graphics acceleration.
B. Increase hardware graphics accelerations.
C. Increase the horizontal setting on the monitor.
D. Decrease the vertical display settings on the monitor.

Answer: A

Explanation:
Reducing the hardware graphics acceleration could help with this problem.
The other alternatives do not apply.

Question 2.
What would definitely cause an IDE hard drive to be damaged?

A. Forcing the IDE cable to the floppy drive connector.
B. Connecting one end of the IDE cable the wrong way.
C. Using the Y splitter where the 5- and 12- volt connectors are switched on one end.
D. Connecting to a defective power supply that only gives five volts on the 12volt line.

Answer: C

Explanation:
Switch 5- or 12-volt connectors could cause physical damage to the hard drive.
It is not possible to use a IDE cable to floppy drive connector. They are dissimilar.
Connecting the IDE cable the wrong way, or power supply that provides 5 volts instead of 12 volt would not have this effect.

Question 3.
The fan stopped working in the power supply, but the computer is still running. What is the proper repair procedure?

A. Replace the fan.
B. Replace the transformer.
C. Lubricate the fan with oil.
D. Replace the power supply.

Answer: D

Explanation:
When a power supply malfunctions it should be replaced.
We should not try to replace parts of it, or try to repair it.

Question 4.
A service technician is trying to master-slave two known good IDE hard drivers, C and D. Drive D was installed as a slave to drive C, but couldn't be made to work. The same problem occurred when drive C was installed as a slave to drive D. Assuming that the technician used correct jumpering in both instances, what should you do next?

A. Replace drive D, because it is now defective.
B. Conclude that drives C and D are non-standard.
C. Conclude that drives C and D are not compatible.
D. Replace drives C and D, because both are now defective.

Answer: C

Explanation:
We have tried both possible master/slave configurations. The conclusion is that the hard drives are incompatible.

Question 5.
What is the first critical component that a failed motherboard battery affects?

A. RAM
B. ROM
C. BIOS
D. CMOS

Answer: D

Explanation:
The CMOS memory uses the motherboard battery to keep its settings.

Question 6.
When you arrive at the customer's desk the computer is giving a continuous beep noise that will not stop. What is the problem?

A. A virus was downloaded from the Internet.
B. The BIOS on the motherboard was corrupted.
C. In proper driver was loaded on the hard drive.
D. A key on the keyboard is stuck in the down position.

Answer: D

Question 7.
A customer states that after someone borrowed a computer, a larger than normal black border appeared around the edge of the Windows desktop. What is the first logical question would you ask?

A. Have you adjusted the contrast?
B. Has the operating system just been upgraded?
C. Have you checked to see if the video cable is loose?
D. Have you checked the video monitor control settings?

Answer: D

Explanation:
The most likely cause of the problem is incorrect video monitor settings.

Question 8.
What does a "201" error indicate during POST?

A. CPU error
B. Memory error

C. Video problem
D. Floppy drive error

Answer: B

Explanation:
POST errors in the 200-299 range indicates (almost always) Memory errors.

1xx: Motherboard errors.	11xx: COM1 errors
2xx: RAM errors	17xx: Hard drive errors
3xx: Keyboard errors	3xxx: NIC errors
6xx: Floppy disk drive errors	

Question 9.
A service technician is trying to install two IDE drivers as master/slave on the same ATA port. Drive 1 installed first, jumped as a master and the BIOS correctly auto detected it. Drive2 was then jumped as a slave and installed but the BIOS would not auto detect it. Which of the following would be the next logical step to trouble shoot the problem?

A. Replace drive 1.
B. Replace drive 2.
C. Make the CD-ROM drive the slave.
D. Configure drive 2 as a master with no slave.

Answer: D

Explanation:
We should try the 2nd drive as a master with no slaves to check if the drive has some physical defect or not.

Question 10.
How should you open the tray on an inoperative CD-ROM drive?

A. Push the eject button.
B. Push in on the lower-right corner door.
C. Right-click the CD icon and select Eject.
D. Insert a paper clip into the CD drive eject hole.

Answer: D

Explanation:
The eject hole of the CD Drive can be used to mechanically open the drive.

Question 11.
You have just installed a 128 MB 168-pin DIMM on your ATX motherboard. You already had 128 MB in 72 pin slots using SIMM. When you turn on your system it is only recognizing only 128 MB of RAM total. Which of the following are possible causes? (Choose Three)

A. You need to update or upgrade your BIOS.
B. BIOS is not set to Read both types of memory.
C. A jumper is not set to support both types of memory
D. The motherboard only supports one type of memory at a time.
E. You need to remove one of the 72- pin memory chips so you have one of each.

Answer: A, B, D

Explanation:
The BIOS might have to be upgraded, or it is not configured to use both memory types.
If we are unlucky the BIOS will only support one memory type at a time.

Question 12.
You get an error during POST on a PC. What could this mean? (Choose two)

A. BIOS needs to be reset.
B. There is a hardware failure.
C. HIMEM.SYS is missing or incorrect.
D. The drivers for the device are incorrect.
E. The Windows file system is generating an error.

Answer: A, B

Explanation:
POST errors could disappear after a reset of the BIOS. Errors during POST are hardware related.

Missing files or incorrect files, incorrect drivers, or problems with the file system would
not generate POST errors.

Question 13.
You just installed a Pentium II 800-MHz chip. When you booted up your computer, it only
recognized 400-MHz chip. What could be the problem?

A. Only half of the chip is installed into the socket.
B. The jumper settings on the chip are not correct.
C. You do not have enough space on your hard drive.
D. The BIOS setting is not reflecting a multi-speed setting.

Answer: D

Explanation:
The BIOS setting should be reconfigured for the new CPU speed. If the CPU chip is incorrectly
installed the computer would not start. There is no jumper settings on CPU chips. Lack of hard
drive space would not result in this behavior.

Question 14.
A customer just installed a new CD-RW. The system was working fine before the installation, but
now the CD-RW does not work. What should you suggest that the customer do?

A. Flash or upgrade the BIOS
B. Check the CONFIG.SYS setup
C. Add CD_RW in the device manager
D. Check the jumper settings on the CD-RW

Answer: D

Explanation:
The first troubleshooting step is to check if the jumper settings of the CD-RW is correctly set to
either master or slave.

Question 15.
Which events increase the chances of a motherboard failure? (Choose two)

A. Power being lost while updating the BIOS

B. Power being lost while updating the printer
C. Connecting a USB device with the power on.
D. Connecting a PS/2 mouse with the power on.
E. Connecting a serial mouse with the power on.

Answer: D & E

Explanation:
You should power off and then connect the PS/2 or serial mouse to the motherboard. Doing this will prevent the electric spark to the motherboard.
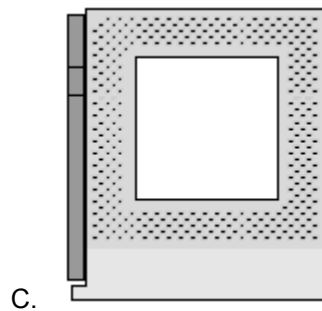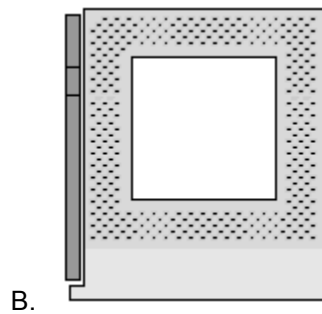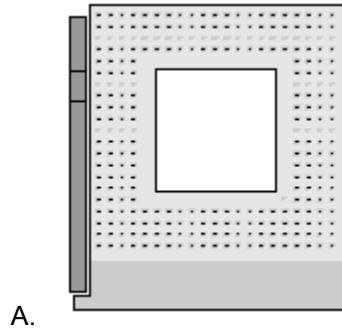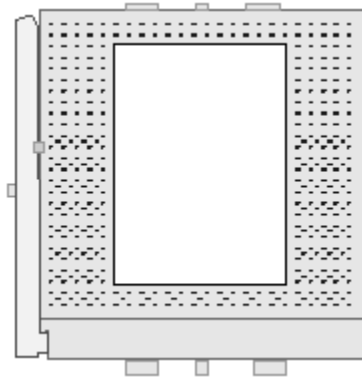BIOS can be replaced or upgraded if power is lost during the update process.

Part 4 Motherboard, Processors, Memory

Question 1.
Which of the following is Socket 4?

A.

B.

C.

D.

Answer: A

Explanation:
Choice A is Socket 4. Socket 4 has 273 numbers of pins and is for 60 or 66 MHz Pentium® processor.
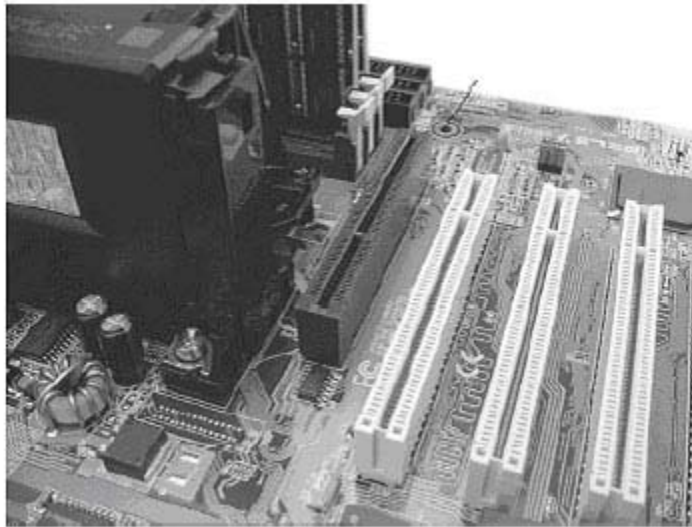
Choice B is Socket 5. Socket 5 has 320 numbers of pins and is for 75, 90 or 100 MHz Pentium® processor.

Choice C is Socket 7. Socket 7 has 321 numbers of pins and is for 75, 90 or 100 MHz Pentium® processor.
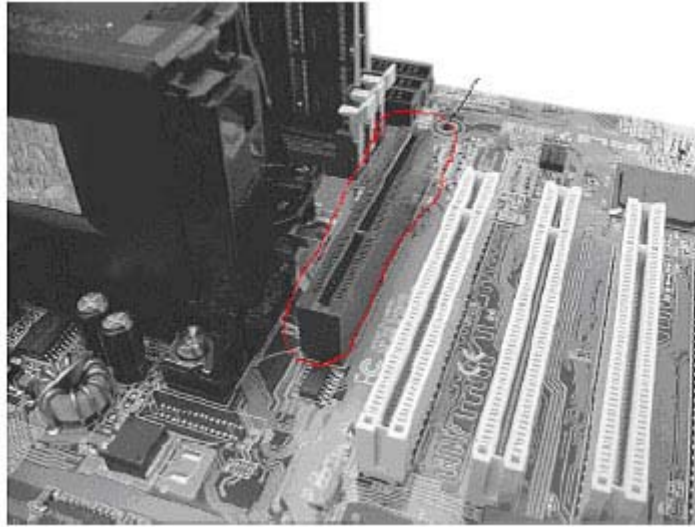
Choice D is Socket 8. Socket 8 has 387 numbers of pins and is for Pentium® Pro processor.

Question 2.
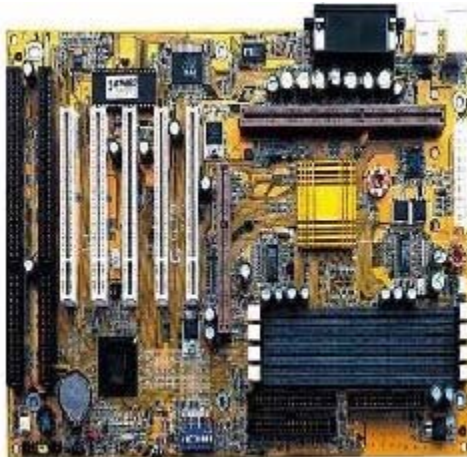Click the area on the graphic that shows the AGP slot on the motherboard?
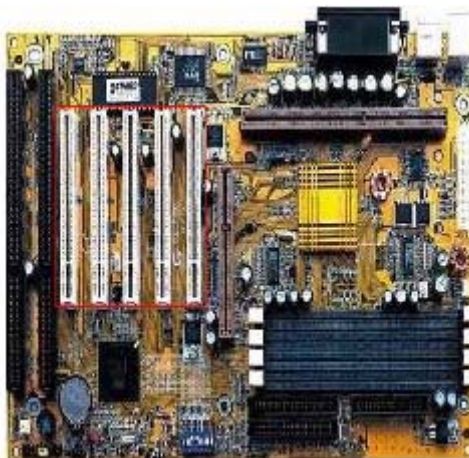

Answer:

Question 3.
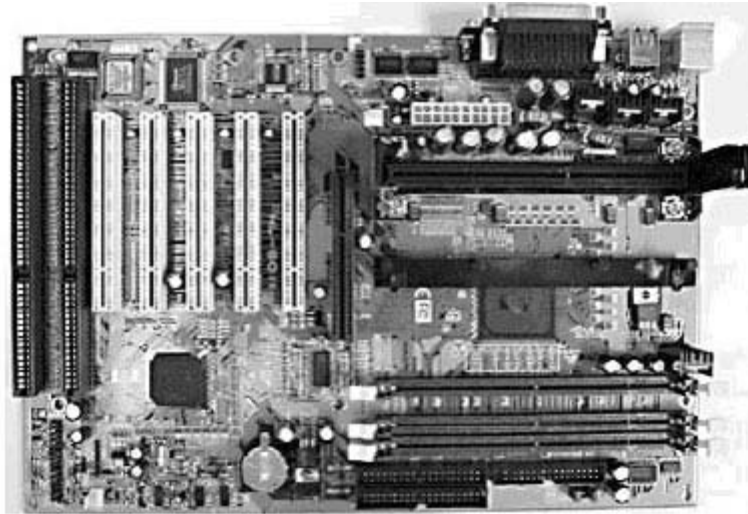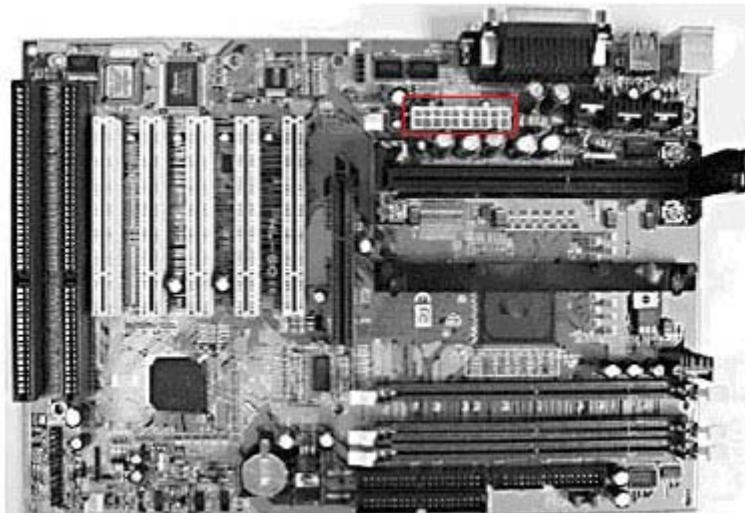Click the area on the graphic that shows the PCI slot on the motherboard.

Question 4.
Click the area on the graphic that shows the power connector?

Answer:

Question 5.
You want to upgrade your slot1 motherboard. Which of the following chips are available in the slot1 package? (CHOOSE THREE)

A. P 233
B. PII 233
C. PIII 333
D. PIII 800
E. AMD Athlon

Answer: B, C, D

Explanation:

Slot 1 motherboards are used for Celeron, Pentium II and Pentium III processors, not for Pentium and Athlon processors.

Question 6.
Which type of motherboard standard accepts the 5-pin DIN keyboard connector?
(Choose Two)

A. AT
B. XT
C. LT
D. ATX

Answer: A, B

Explanation:
ATX accepts 6 pins MINI-DIN connector.

Question 7.
Which is not a valid AMD CPU?

A. K6
B. K5
C. K8
D. Athlon

Answer: C

Explanation:
K5, K6 and Athlon are existing AMD processors.
There is no K8 processor.

Question 8.
What is the main difference between AT and ATX motherboards? (CHOOSE TWO)

A. PS/2 port
B. BNC connector
C. Soft power switch
D. Serial connectors
E. Parallel connectors

Answer: A, C

Explanation:
AT motherboards, but not ATX motherboards, support the PS/2 port and a Soft power switch.

Question 9.
What is the most significant difference between EDO RAM and Fast Page Mode DRAM?

EDO RAM is_____

A. faster
B. slower
C. smaller
D. cheaper

Answer: A

Explanation:
EDO RAM is a more recent, faster technology compared to Fast Page mode DRAM.

Question 10.
Which CPU is intended to operate at a 66MHZ motherboard speed?

A. Intel 80486
B. Pentium 75
C. Pentium II 350
D. Pentium II 300

Answer: D

Explanation:
A 66MHz bus speed times 4.5 gives 300 MHz.
No 486 processor had a bus speed of 66MHz (max 33MHz.).
75MHz and 350MHz are not dividable with 66MHz.

Question 11.
What is the memory contained inside the CPU called?

A. RAM
B. ROM
C. CACHE
D. VIRTUAL

Answer: C

Explanation:
The CPU uses fast cache memory to improve speed.

Question 12.
What do you need to do when replacing the motherboard in a portable computer?

A. Ensure that the board is AT or ATX.
B. Match the manufacturer and the model number exactly.
C. Any motherboard will act as long as it is specified for a laptop.
D. Ensure that the board is from that manufacturer the boards are interchangeable.

Answer: D

Explanation:
When replacing the motherboard in a portable computer you must make sure that the boards are interchangeable.

Question 13.
Which of the following are considered types of video RAM? (Choose three)

A. VRAM.
B. LRAM.
C. WRAM.
D. DRAM.
E. SGRAM

Answer: A, C, E

Explanation:
VRAM (Video RAM), WRAM (Windows Accelerator Card RAM), and SGRAM (Synchronous Graphic Random Access Memory) are used on video adapters.

Question 14.
ISA card should work in which bus slots? (Choose two)

A. PCI
B. ISA
C. AGP
D. MCA
E. EISA

Answer: B, E

Explanation:
ISA cards work in ISA and Extended ISA (EISA) slots.

Question 15.
A ZIF socket was put on the motherboard to help with inserting and removing?

A. CPUs
B. SIMMS
C. DIMMS
D. CPU FANS

Answer: A

Explanation:
A Zero Insertion Force (ZIF) socket is used to inserting and removing CPUs.

Question 16.
What is the motherboard speed setting for a Pentium-200?

A. 50 MHZ
B. 60 MHZ
C. 66 MHZ
D. 200MHZ

Answer: C

Explanation:
A Pentium 200 MHz processor runs with a 66MHz bus speed.

Question 17.
What is the memory type shown below?

A. DIMM
B. SIMM
C. RIMM
D. SDRAM

Answer: C

Explanation:
Rambus memory modules are called RIMM™s. Because of the fast data transfer rate of these modules, a heat spreader (aluminum plate covering) is used for each module

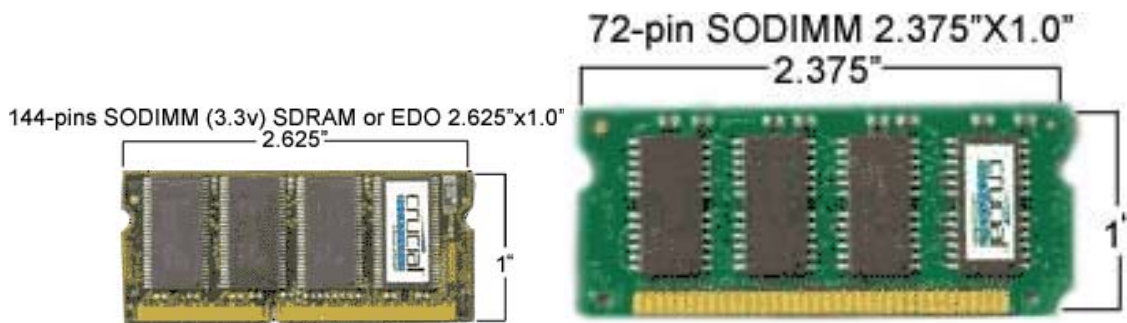**Question 18.**
What is the memory type shown below?

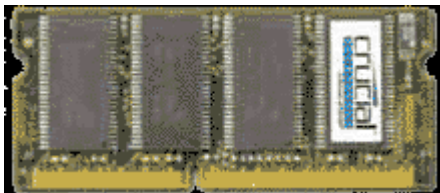A. DIMM
B. SIMM
C. RIMM
D. SODIMM

Answer: D

Explanation:
SODIMM is a type of computer memory. It comes in two sizes, 72-pin and 144-pin.
It is equivalent to a DIMM chip but it is smaller and thinner and designed for notebook computers (laptops). PCs, Apple PowerMac and iMac computers use these memory chips.

Question 19.
What is the memory type shown below?

A. DIMM
B. SIMM
C. RIMM
D. SODIMM

Answer: D

Explanation:
SODIMM is a type of computer memory. It comes in two sizes, 72-pin and 144-pin.
It is equivalent to a DIMM chip but it is smaller and thinner and designed for notebook computers
(laptops). PCs, Apple PowerMac and iMac computers use these memory chips.

Question 20.
MicroDIMM has how many numbers of pins.

A. 72.
B. 128
C. 144
D. 272

Answer: C

Explanation:
144-pin MicroDIMMs are commonly found in sub-notebook computers. Each 144-pin MicroDIMM
provides a 64-bit data path, so they are installed singly in 64-bit systems. 144-pin MicroDIMMs
are available in PC100 SDRAM.