

3.7 Module Quiz

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Score: 95%

Passing Score: 80%



Question 1

✓ Correct

You are using Disk 1 and Disk 2 on your Windows 11 workstation to create a RAID 0 striped volume. Disk 1 stores 500 GB, and Disk 2 stores 1.5 TB.

What will be the total amount of available disk space allocated for the striped volume?




- ☐ 2 TB
- ☐ 1.5 TB
- ☒ 1 TB ✓ Correct
- ☐ 1.25 TB

Explanation

When you create a striped array, the two disks involved have to be exactly the same size. If not, the amount of available space on the larger drive will be reduced to match the size of the smaller drive.

In this scenario, Disk 1 is the smaller drive (500 GB), so the amount of available space on Disk 2 will be reduced to 500 GB. There will be a total of 1 TB of available space on the striped volume.

Related Content

-  3.2.5 Redundant Array of Independent Disks
 -  3.2.6 RAID 0 and RAID 1
 -  3.2.7 RAID 5 and RAID 10
- resources\questions\q_stg_dev_striped_volume_total.question.xml

Question 2

✓ Correct

Which of the following voltages are provided by an ATX power supply? (Select three.)

☒ 12 ✓ Correct

☐ 24

☐ 15

☒ 5 ✓ Correct

☐ 7

☒ 3.3 ✓ Correct

☐ 9

Explanation

An ATX power supply provides 3.3, 5, and 12-volt DC power sources, but not 7, 9, 15, or 24 volts.

Related Content

 3.1.3 Wattage Rating

 3.1.4 Power Supply Connectors

 3.1.5 20-pin to 24-pin Motherboard Adapter

resources\questions\q_pwr_cool_atx_pwr_supply_voltages.question.xml

Question 3

✔ Correct

Which of the following statements is true? (Select two.)



64-bit processors use the x86-64 instruction set (also referred to as x64).

✔ Correct



32-bit applications can run on 64-bit processors if the BIOS/UEFI is set correctly.



32-bit applications can only run on 32-bit processors.



32-bit processors use only the IA-32 instruction set (also referred to as x86).

✔ Correct



x64 processors execute only 64-bit instructions in the hardware.

Explanation

The processor instruction set identifies all instructions (operations) that a processor can perform. 32-bit processors use the IA-32 instruction set (also referred to as x86). Itanium processors from Intel use the IA-64 instruction set. AMD64 and Intel 64 processors use the x86-64 instruction set (also referred to as x64).

32-bit applications can run on 64-bit processors.

x64 processors execute both 32-bit and 64-bit instructions in the hardware.

There are no settings in BIOS/UEFI to make sure that 32-bit applications can run on 64-bit processors.

Related Content

3.4.1 CPU Architecture



3.4.2 x86 CPU Architecture



3.4.3 x64 CPU Architecture



3.4.4 ARM CPU Architecture

resources\questions\q_cpu_32-bit_proc_and_x86.question.xml

Question 4

✔ Correct

What does Double Data Rate (DDR) memory achieve by using both the rising and falling edges of the clock cycle?


- ☒ It doubles the data transfer rate compared to traditional SDRAM. ✓ Correct
- ☐ It synchronizes with the system clock to improve stability.
- ☐ It reduces the power consumption of memory modules.
- ☐ It increases memory capacity per module.

Explanation

DDR memory achieves double the data transfer rate by utilizing both the rising and falling edges of the clock cycle, allowing for two operations per cycle. This does not inherently increase capacity, synchronize stability, or reduce power consumption, but it significantly improves data throughput compared to traditional SDRAM.

Related Content

 3.3.2 RAM Types

 3.3.3 Memory Modules

resources\questions\q_sys_mem_ddr_operation.question.xml

Question 5

✓ Correct

How does emulation affect the performance of x86/x64 software running on ARM-based devices?

- ☐ It prevents the software from running altogether.
- ☐ It improves performance by optimizing software for ARM architecture.
- ☒ It typically imposes a performance penalty due to additional computational overhead. ✓ Correct
- ☐ It requires no additional resources and runs the software natively.

Explanation

Emulation imposes a performance penalty because it requires additional computational resources to translate x86/x64 instructions into ARM instructions. Emulation enables x86/x64 software to run on ARM-based devices by mimicking the native environment, but this process introduces significant computational overhead, leading to reduced performance. The option stating that emulation improves performance is incorrect because it does not optimize the software for ARM; it merely allows it to run. The option stating that emulation prevents the software from running is inaccurate, as the software can run with reduced efficiency. Finally, the option stating that emulation requires no additional resources is false, as it demands substantial computational effort to achieve compatibility.

Related Content 3.4.1 CPU Architecture 3.4.4 ARM CPU Architecture

resources\questions\q_cpu_arm_emulation.question.xml

Question 6

✔ Correct

You have a desktop computer that provides a 250-watt power supply. You recently added a four-disk RAID 10 array to the system, and now it spontaneously shuts down.

Which of the following would MOST likely solve this issue?

- ☒ Upgrade to a power supply that provides more watts. ✔ Correct
- ☐ Upgrade to a power supply that provides more volts.
- ☐ Upgrade to smaller capacity hard drives.
- ☐ Use the switch on the power supply to switch from 115 VAC to 230 VAC.

Explanation

The number of devices a power supply can support is directly related to the number of watts the power supply provides. In this situation, the new RAID array, along with all of the other components in the system, is drawing more watts than the power supply can provide. A watt is a rating for the amount of work that the power supply can perform.

Volts measure electrical pressure and are not directly related to the number of supportable devices. The voltage is dependent on the wall socket's voltage. The voltage switch on the power supply should match the voltage at the wall outlet. 115 is used in the United States, while 230 is typically used in Europe.

Related Content

3.1.3 Wattage Rating

resources\questions\q_pwr_cool_4-disk_raid_10_pwr.question.xml

Question 7

✔ Correct

Which of the following are optical storage devices? (Select three.)

☒ BD ✔ Correct

☐ SSD

☒ DVD ✔ Correct

☐ HDD

☐ USB flash drive

☒ CD ✔ Correct

☐ SDHC


Explanation


Optical storage devices use lasers for both reading and writing information. The following are all optical storage devices:


- CD (Compact Disc)
- DVD (Digital Video Disc or Digital Versatile Disc)
- BD (Blu-ray Disc)


HDDs (hard disk drives) are magnetic storage devices. A flash device stores information using programmable non-volatile flash memory. USB flash drives, SSDs (solid-state drives), and SDHC (secure digital high capacity) memory cards are flash devices.


Related Content


 2.2.4 Motherboard Storage Connectors


 3.2.3 Solid-State Drives

 3.2.11 Optical Drives

 4.2.13 Troubleshooting Problems with Storage Drives & RAID Arrays

 8.2.7 Cloud File Storage

 12.4.2 Storage

 15.2.2 Windows Domains and Active Directory



21.1.4 Backup Media Requirements

resources\questions\q_stg_dev_optical_storage_types.question.xml

Question 8

✓ Correct

A customer needs to use several applications. Currently, the computer cannot keep all the necessary applications open at the same time.

Which of the following components should you consider upgrading?

☒ Memory ✓ Correct

☐ Hard disk drive

☐ System board

☐ CPU

Explanation

When an application starts up, it is loaded into memory. If the computer does not have sufficient memory, the application cannot start. To remedy the problem, add more memory to your computer.

You upgrade the hard disk to provide additional storage space for files.

You upgrade the CPU to execute programs faster or to provide advanced processing features.

You upgrade the system board to support new components, such as newer memory modules, CPUs, or bus types.

Related Content

resources\questions\q_sys_mem_ram_types_mem_upgrd_for_apps.question.xml

Question 9

✔ Correct

What happens in Windows when physical RAM is being used to its full capacity and a user runs a new application?

- ☐ The CPU sends an error code to the user.
- ☐ The VMM divides the data from each app to different hard drives.
- ☒ The kernel moves the data from an app not currently being accessed from RAM to a paging file. ✓ Correct
- ☐ Windows crashes.

Explanation

In Windows, when the physical RAM is being used to its full capacity and a user opens a new application, the kernel moves the data from an app not currently being accessed from RAM to a paging file to create room on the physical RAM.

Windows should not crash in this scenario. Windows will simply create virtual RAM on the HDD through swapping.

The CPU will not send an error code to the user if they open a new application and the physical RAM is being used to full capacity.

The VMM does not divide the data from each app to different hard drives. You can manually configure paging files to be divided up between hard drives, which is not done through the VMM.

Related Content

resources\questions\q_sys_mem_vmem_kernel_moves_data_to_drive.question.xml

Question 10

✓ Correct


What is an advantage of RAID 5 over RAID 1?

- ☒ RAID 5 improves performance over RAID 1. ✓ Correct
- ☐ RAID 5 continues to operate with a failure in two disks. RAID 1 can only operate with a failure of one disk.
- ☐ RAID 5 provides redundancy; RAID 1 does not.
- ☐ RAID 5 provides redundancy for the disk controller.

Explanation

RAID 5 provides both fault tolerance and improved performance. RAID 1 (utilizing mirroring) provides only fault tolerance with no performance benefit. Both RAID 5 and RAID 1 can only sustain a loss of one disk in the set. Use multiple disk controllers to provide redundancy for the disk controller.

Related Content

 3.2.5 Redundant Array of Independent Disks

 3.2.6 RAID 0 and RAID 1

 3.2.7 RAID 5 and RAID 10

resources\questions\q_stg_dev_raid_5_vs_raid_1_adv.question.xml

Question 11

✔ Correct

Which of the following is the most common method for removing RAM from a motherboard?



Move the tabs holding the RAM out of the way, then pull straight up to remove the RAM.



Correct



Tip the RAM module at a 45-degree angle while pulling on it.



Remove the screw from the one side, then pull straight up to remove the RAM.



Pull the RAM module up from one corner and then twist it to release the other corner.

Explanation

Most RAM is held in place with small tabs on either end. Push the tabs down to rotate them back, and then pull the RAM straight up.

Related Content

resources\questions\q_sys_mem_insf_remove_ram_from_mthbrd.question.xml

Question 12

✓ Correct

Your company relocated you from the United States to their United Kingdom office in London. You brought your personal computer with you, and you are in the process of setting it up. Your computer was previously configured to receive 115 VAC, but the electricity in London uses 230 VAC.

Which of the following would allow your computer to run on 230 VAC?

- ☒ Inspect the power supply unit for a manual voltage switch and move it to 230 VAC. Otherwise, no action is necessary. ✓ Correct
- ☐ Purchase a voltage converter and plug your computer into the converter box.
- ☐ Edit the BIOS and modify the voltage input setting.
- ☐ Purchase a new power supply that is compatible with 230 VAC.

Explanation

Most power supplies have the capacity to receive either 115 or 230 volts of power just by toggling a switch on the power supply case. However, modern power supplies generally support automatic voltage switching with no action required. You can use this switch when using the power supply in other countries. The 115-volt setting is used in the United States. 230 volts is used in Europe.

Because most power supplies support both 115 VAC and 230 VAC, you probably don't need to purchase an external voltage converter.

BIOS does not provide a voltage input setting to switch from 115 VAC to 230 VAC.

Related Content

3.1.1 Power Supply Units

resources\questions\q_pwr_cool_run_on_230_vac.question.xml

Question 13

✔ Correct

A hardware technician installed a new power supply unit (PSU) in a workstation and removed unnecessary power connector cables. What type of PSU did the technician install?

- ☐ ATX12V
- ☐ ATX
- ☐ Redundant
- ☒ Modular ✔ Correct

Explanation

Modular PSU incorporates connectors on the PSU and component ends of the power cables. ATX12V, ATC, and Redundant PSU do not explicitly include an option to remove unnecessary connectors.

Related Content

3.1.6 Modular Power Supplies

resources\questions\q_pwr_cool_modular_psu.question.xml

Question 14

✓ Correct

You have a system that has been overheating. Which of the following actions will NOT help to keep the system cool?

- ☐ Installing a water cooling system
- ☒ Removing the case side panel ✓ Correct
- ☐ Cleaning off the inside of the computer case
- ☐ Adding thermal paste or a thermal pad between the CPU and the heat sink
- ☐ Installing heat spreaders and heat sinks on internal components

Explanation

Removing the case side panel will not keep a system from overheating. The system case is specially designed to maximize airflow across system components. By removing the side panel, you modify the airflow path and reduce its effectiveness. In addition, removing the side panel allows more dust to accumulate. Dust acts as an insulator, and traps heat close to components.

Cleaning off the inside of the computer case, installing heat spreaders and heat sinks on internal components, installing a water cooling system, and adding thermal paste or a thermal pad between the CPU and the heat sink are all good ways to help keep a system cool.

Related Content

resources\questions\q_pwr_cool_keep_sys_cool.question.xml

Question 15

✓ Correct





How does the x64 architecture enhance virtualization and security?

- ☐ It eliminates the need for software-based security measures.
- ☒ It includes hardware-based virtualization technologies and Data Execution Prevention (DEP). ✓ Correct
- ☐ It improves performance with smaller instruction sets.
- ☐ It supports 32-bit virtual machines without performance penalties.

Explanation

The x64 architecture includes hardware-based virtualization technologies and Data Execution Prevention (DEP), which enhance performance and security. Hardware-based virtualization technologies, such as Intel VT-x and AMD-V, improve virtual machine efficiency, while DEP prevents code execution in non-executable memory regions, increasing system security. The option stating that x64 enhances performance with smaller instruction sets is incorrect, as its benefits derive from hardware-based features rather than reduced instruction size. Supporting 32-bit virtual machines is possible but does not eliminate performance penalties entirely. x64 does not eliminate the need for software-based security measures, as both hardware and software security features work together to protect systems.

Related Content

-  3.4.1 CPU Architecture
-  3.4.2 x86 CPU Architecture
-  3.4.3 x64 CPU Architecture
-  3.4.4 ARM CPU Architecture

resources\questions\q_cpu_x64_virtualization.question.xml

Question 16

✕ Incorrect

Your server runs in quadruple-channel memory mode.

How many memory controllers are being used?

☐ Eight

☐ Two

☒ One ✕ Incorrect

☐ Four ✓ Correct

Explanation

Dual-channel systems use two memory controllers, while triple-channel systems use three memory controllers. Quadruple-channel (quad-channel) systems use four memory controllers. Each memory controller can communicate with one or more memory modules at the same time.

Related Content

 3.3.5 Multi-channel System Memory
resources\questions\q_sys_mem_multi_channel_ram_quad_memory_controllers.question.xml

Question 17

✓ Correct





A software developer is creating an application that will run multiple parallel threads through the central processing unit (CPU) at the same time to reduce the amount of "idle time" the CPU spends waiting for new instructions to process. What type of process is the developer taking advantage of?

- ☐ Multi-core
- ☒ Multithreading ✓ Correct
- ☐ Processor extensions
- ☐ Multi-socket

Explanation

Multithreading allows a CPU to work on multiple tasks concurrently, such as performing calculations while simultaneously waiting for data from a network request. This overlapping of tasks keeps the CPU busy and minimizes idle time, leading to more efficient program execution.

Related Content

-  3.4.1 CPU Architecture
-  3.4.2 x86 CPU Architecture
-  3.4.4 ARM CPU Architecture
-  3.4.5 CPU Features

resources\questions\q_cpu_multithreading.question.xml

Question 18

✔ Correct

You work for a small company as the human resources specialist. Since the company is fairly small, you are maintaining all of the employee information on your desktop computer, which is running Windows 11. This computer has two high-capacity hard disks. You want to ensure that this information is protected from a hard disk failure, so you want to set up a Windows software RAID system.

Which of the following would be your BEST solution?

- ☐ Use spanned volumes.
- ☒ Use mirrored volumes. ✓ Correct
- ☐ Use RAID 5 volumes.
- ☐ Use striped volumes.

Explanation


A Windows software RAID system can be configured on Windows 11 using the Windows Disk Management tool. Of the available options from within Disk Management, you would need to configure a mirrored volume to protect your data from a disk failure. Disk mirroring requires two available drives with sufficient storage. Once configured, the data written to a mirrored volume is duplicated to both drives. This duplication, or mirroring, means that if one of the mirrored drives fails, all of the data can still be retrieved from the remaining good drive.

A spanned volume is a dynamic volume consisting of disk space on more than one physical disk. This method does not duplicate the data. If a spanned volume drive fails, the data is lost.

A striped volume uses the free space on more than one physical hard disk to create a bigger volume (similar to a spanned volume). However, a striped volume writes across all volumes in the stripe in small blocks, distributing the load across the disks in the volume. In other words, when a single file is written, some of the file will be on one disk, and the rest of the file will be on another. This makes writing files faster. It does not, however, protect the data in the event of a disk failure.

RAID 5 requires more than two disks.

Related Content

 3.2.5 Redundant Array of Independent Disks

 3.2.6 RAID 0 and RAID 1



3.2.7 RAID 5 and RAID 10

resources\questions\q_stg_dev_use_mirrored_vol.question.xml

Question 19

✓ Correct

Which of the following drive configurations uses striping with parity for fault tolerance?

- ☐ RAID 1
- ☐ RAID 10
- ☒ RAID 5 ✓ Correct
- ☐ RAID 0

Explanation

RAID 5 uses disk striping, but provides fault tolerance for a single disk failure. Disk striping breaks data into units and stores the units across a series of disks by reading and writing to all disks simultaneously.

RAID 0 uses disk striping and offers no fault tolerance. A failure of one disk in the set means that all data is lost.

RAID 1 provides fault tolerance, but does not use striping.

A RAID 10 array nests a mirrored array within a striped array.

Related Content

3.2.5 Redundant Array of Independent Disks



3.2.6 RAID 0 and RAID 1



3.2.7 RAID 5 and RAID 10

resources\questions\q_stg_dev_trb_raid_5_striping_parity.question.xml

Question 20

✓ Correct

Which of the following should you always do to avoid damage when you prepare to install a CPU? (Select two.)

- ☐ Adjust the motherboard bus, processor, and memory settings.
- ☐ Run a benchmark test.
- ☒ Ensure that the CPU and motherboard socket type match. ✓ Correct
- ☒ Use anti-static protection. ✓ Correct
- ☐ Make sure that the memory (RAM) modules are seated properly.

Explanation

When you prepare to install a CPU, always use anti-static protection and ensure that the CPU and motherboard socket type match.

Running a benchmark test gives you information about the speeds of the processor, graphics card, storage drives, and memory. A benchmark test is not related to preparing to install a CPU.

Adjusting the motherboard bus, processor, and memory settings is often done when overclocking a processor. Adjusting the motherboard is not a step to avoid damage when preparing to install a CPU.

While you might want to make sure that the memory modules are seated properly after installing the CPU, making sure that the memory modules are seated properly is not associated with avoiding damage to the CPU.

Related Content

 3.4.6 CPU Socket Types

 3.4.7 CPU Types and Motherboard Compatibility

resources\questions\q_cpu_inst_cpu_install_prep.question.xml