

## 3.3.9 Lesson Review

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Score: 95%

Passing Score: 80%



### Question 1

✓ Correct

Which of the following are true when working with dual-, triple-, and quad-channel memory module sets? (Select two.)

☐ You need to install memory modules next to each other in a set.

☒ You should use the same capacity modules for a set. ✓ Correct

☐ You can mix modules with different capacities within a set.

☒ You must install modules in matching sets (capacity and speed). ✓ Correct

☐ You can assign memory slots to memory modules in BIOS/UEFI.

### Explanation

The memory modules within a set must be exactly the same in capacity and speed configuration, preferably from the same manufacturer and the same model.

You need to install memory modules in the slots specified in the motherboard documentation. Normally, the modules in a set are spaced one slot apart (such as slots 1 and 3).

While you can configure some memory parameters in BIOS/UEFI, you cannot re-assign memory slots to memory modules in BIOS/UEFI.

### Related Content

resources\questions\q\_sys\_mem\_insf\_memory\_module\_sets.question.xml

## Question 2

✓ Correct

You notice your applications are loading and running slowly when you switch between them. You also notice that your hard disk drive light is constantly lit.

Which of the following is the BEST option to stop this problem from happening frequently on your system?

- ☒ Install more physical RAM. ✓ Correct
- ☐ Reboot the system at the first indication of the problem.
- ☐ Install a larger CPU.
- ☐ Configure a larger paging file on the HDD.

**Explanation**

The hard disk driver staying lit constantly, applications loading slowly, and applications running slowly are symptoms of disk thrashing. The recommended fix for disk thrashing is to install more physical RAM.

Rebooting the system will not fix a disk thrashing problem.

Installing a larger CPU will not fix a disk thrashing problem.

Configuring a larger paging file on the HDD will improve the performance of the virtual memory but will not prevent disk thrashing. If you have inadequate physical RAM for what you are continuously using your system for, the kernel will constantly swap, which will cause disk thrashing. So installing more physical RAM would be the best choice.

**Related Content**

resources\questions\q\_sys\_mem\_vmem\_install\_ram\_sol.question.xml

## Question 3

✔ Correct

How is the peak transfer rate for DDR-200 (PC1600) calculated?

- ☐ By halving the data rate to account for transfer delays
- ☐ By using the clock speed of the memory bus only
- ☐ By multiplying the clock speed by the system memory capacity


☒ By multiplying the data rate (200 MT/s) by 8 bytes per transfer ✔ Correct

**Explanation**

The peak transfer rate for DDR-200 (PC1600) is calculated by multiplying the data rate, which is 200 MT/s, by 8 bytes per transfer, resulting in 1600 MBps. This approach uses the data rate and transfer size rather than just clock speed, system memory capacity, or adjusting for delays.

**Related Content**

 3.3.2 RAM Types

 3.3.3 Memory Modules

resources\questions\q\_sys\_mem\_ddr-300\_transfer\_speed\_calc.question.xml

## Question 4

✔ Correct

You are trying to push a memory module into a memory slot, but it is not seating properly.

What is the MOST likely issue?

- ☐ You need to push down the slot tabs and move them back.
- ☒ You are trying to install the memory module backward in the memory slot. ✓ Correct
- ☐ You need to clear debris from the memory slot.
- ☐ You are trying to install a single-sided memory module in a double-sided slot.

**Explanation**

Most memory is keyed to prevent it from being installed backward or in incompatible slots. In this scenario, the most likely issue is that you are trying to install the memory module backward in the memory slot.

There are no memory slots that are specific to single-sided or double-sided memory modules.


An empty slot normally has the slot tabs pushed down and back.

While there may be some debris in a memory slot, this is not likely the cause.

**Related Content**

 2.2.3 Motherboard CPU and System Memory Connectors

 3.3.2 RAM Types

 3.3.3 Memory Modules

resources\questions\q\_sys\_mem\_insf\_seating\_issue.question.xml

## Question 5

✓ Correct

Your server runs in quadruple-channel memory mode.

How many memory controllers are being used?

☐ Eight

☐ Two

☐ One

☒ 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  
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## Question 6

✔ Correct

Which of the following is simulated memory that is created through a paging file on the hard drive?

- ☐ Disk thrashing
- ☐ RAM
- ☐ VMM
- ☒ Virtual memory ✓ Correct

**Explanation**

Virtual memory is simulated memory that is created through a paging file on the hard drive.

Disk thrashing is when the amount of physical memory is so low that data must constantly be moved from physical RAM to disk and back again.

RAM stands for random access memory, which is a system's physical memory.

VMM is the Virtual Memory Manager, which is the utility in charge of swapping data between physical memory and the hard disk.

**Related Content**

resources\questions\q\_sys\_mem\_vmem\_virtual\_mem\_def.question.xml

## Question 7

— Partial

What are the advantages of DDR4 over DDR3, assuming the same operating frequency? (Select two.)

☐ DDR4 doubles the data transfer rate of DDR3. ✓ Correct

☒ DDR4 uses less power than DDR3. ✓ Correct

☐ DDR4 accepts sixteen consecutive 64-bit words per bus clock cycle.

☒ DDR4 includes a buffer between the data bus and the memory. ✗ Incorrect

☐ DDR4 accepts four consecutive 64-bit words per bus clock cycle.

**Explanation**


DDR4 doubles the data transfer rate of DDR3 and generally requires less voltage than DDR3 memory.

DDR4 accepts eight consecutive 64-bit words per bus clock cycle, the same as found in DDR3.

DDR3 and DDR4 memory include a buffer between the data bus and the memory.

**Related Content**

 3.3.2 RAM Types

 3.3.3 Memory Modules

resources\questions\q\_sys\_mem\_ram\_types\_ddr4\_adv\_over\_ddr3.question.xml

## Question 8

✔ Correct

What might be necessary to enable dual-channel mode on a dual-channel motherboard?

- ☐ Using mismatched memory modules to force dual-channel compatibility
- ☐ Replacing the motherboard's memory slots with single-channel slots
- ☐ Installing modules with higher timings and latency to increase stability
- ☒ Activating dual-channel mode within the PC's firmware ✓ Correct

**Explanation**

Enabling dual-channel mode may require activation in the system setup program within the PC's firmware. Simply replacing memory slots or using mismatched modules would not enable dual-channel and could reduce performance. Modules with higher timings do not inherently improve stability and may impact performance negatively.

**Related Content**

3.3.5 Multi-channel System Memory

resources\questions\q\_sys\_mem\_enable\_dual\_channel\_mode.question.xml



## Question 9

✓ Correct

You have just received an order for various system components you placed several weeks ago. One of the components is labeled as SO-DIMM memory.

Which of the following was this memory MOST likely purchased for?

- ☐ Servers
- ☐ Desktop workstations
- ☐ Printers
- ☒ Laptop computers ✓ Correct

**Explanation**


Small outline dual in-line memory modules (SO-DIMM) is a compact form factor of DIMM. It is typically used in smaller computers, such as laptops.

Servers and desktop workstations normally use DIMM memory.

Printers normally use SIMM memory.

**Related Content**

 3.3.2 RAM Types

 3.3.3 Memory Modules

resources\questions\q\_sys\_mem\_ram\_types\_sodimm\_mem\_purpose.question.xml

## Question 10


✔ Correct

What is the primary way that DDR2, DDR3, DDR4, and DDR5 memory improve performance over earlier DDR versions?

- ☐ By using smaller memory modules to improve heat dissipation
- ☒ By multiplying the bus speed to allow higher bandwidth ✓ Correct
- ☐ By reducing the number of memory cells required for data storage
- ☐ By increasing the memory clock speed

**Explanation**

DDR2 and subsequent DDR generations improve performance by multiplying the bus speed, which enhances bandwidth without increasing memory device speed to the point of overheating or instability. Simply increasing the memory clock speed or reducing module size alone would not achieve the same scalable performance improvements. Reducing memory cells would decrease capacity, not enhance performance.

**Related Content** 3.3.2 RAM Types 3.3.3 Memory Modules

resources\questions\q\_sys\_mem\_ddr\_performance\_comparison.question.xml