CompTIA A+ Core 1 (220-1201) Practice Exam (Sample)

Study Guide

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Questions

1. **What type of drive stores data on a metal or glass platter coated with a magnetic substance?**
   - **A. Solid State Drive (SSD)**
   - **B. Hard Disk Drive (HDD)**
   - **C. Flash Drive**
   - **D. External Hard Drive**

2. **What is the purpose of a color profile in color management?**
   - **A. To enhance the brightness of images**
   - **B. To define the range of colors represented within a color model**
   - **C. To compress image sizes for faster loading**
   - **D. To adjust the resolution of displayed images**

3. **What is the expected throughput for DDR5 modules?**
   - **A. 12.8 to 25.6 GB/s**
   - **B. 38.4 to 51.2 GB/s**
   - **C. 64.0 to 84.0 GB/s**
   - **D. 128.0 to 192.0 GB/s**

4. **Which HDMI type allows validation of the connection with the display?**
   - **A. HDMI Type C**
   - **B. HDMI Digital Content Protection (HDCP)**
   - **C. High-Resolution HDMI**
   - **D. Standard HDMI**

5. **Which of the following best describes Stratum 0 in the NTP hierarchy?**
   - **A. Provides highly accurate time but is not directly connected to the networks**
   - **B. Distributes time received from Stratum 1 clocks**
   - **C. Synchronizes with Stratum 1 servers for accurate distribution**
   - **D. Classifies the accuracy of time across multiple servers**

6. Which encryption key length offers even higher security in the WPA3 protocol?

A. 128-bit

B. 256-bit

C. 192-bit

D. 512-bit

7. What component begins cooling down liquid as it leaves the CPU?

A. Water block

B. Radiator

C. Liquid reservoir

D. Cooling fan

8. Which type of memory module is characterized by the ability to use any size of module in any slot?

A. Paired Bank Memory Module

B. Single Bank Memory Module

C. Disk Cache

D. Mass storage devices

9. What allows users to configure installable options for a printer?

A. Color Management Tab

B. Device Settings Tab

C. Duplex Mode

D. Print Server

10. Which of the following Wi-Fi standards was introduced in the late 1990s?

A. 802.11a

B. 802.11g

C. 802.11b

D. 802.11n

Answers

1. B
2. B
3. B
4. B
5. A
6. C
7. B
8. B
9. B
10. A

Explanations

1. What type of drive stores data on a metal or glass platter coated with a magnetic substance?

A. Solid State Drive (SSD)

B. Hard Disk Drive (HDD)

C. Flash Drive

D. External Hard Drive

The correct choice is the Hard Disk Drive (HDD) because this type of storage device uses a physical disk, typically made from metal or glass, which is coated with a magnetic material. This magnetic coating allows data to be written and read by the drive's read/write heads as they move across the spinning platters. When data is saved to the HDD, it is magnetically encoded onto these platters, allowing for the storage of large amounts of information. In contrast, a Solid State Drive (SSD) utilizes flash memory chips to store data, which do not involve any moving parts or magnetic coatings. Flash Drives also use flash memory technology, and an External Hard Drive can either be an external enclosure containing an HDD or an SSD, making them not exclusively reliant on the platter-based technology characteristic of HDDs. Thus, the unique structure and function of the HDD make it the appropriate answer to the question regarding storage on a magnetic-coated platter.

2. What is the purpose of a color profile in color management?

A. To enhance the brightness of images

B. To define the range of colors represented within a color model

C. To compress image sizes for faster loading

D. To adjust the resolution of displayed images

A color profile in color management serves to define the range of colors that can be represented within a specific color model. This is crucial for ensuring that colors remain consistent across different devices, such as monitors, printers, and cameras. Each device has its own way of interpreting and reproducing colors, which can lead to discrepancies in how images are viewed or printed. By using a color profile, you can identify the color gamut (the complete range of colors) that a device can accommodate, which helps in managing and translating colors accurately. This allows for more predictable and reliable color reproduction, ensuring that what you see on your screen closely matches what is produced in print or on other devices. The other options relate to different aspects of image processing and display but do not address the specific role of color profiles in managing color consistency across various mediums. For instance, enhancing brightness is about adjusting tonal values, while compressing image sizes pertains to file management and loading speeds, and adjusting resolution involves changing pixel density rather than color representation. Hence, defining the color range is the primary function attributed to color profiles.

3. What is the expected throughput for DDR5 modules?

A. 12.8 to 25.6 GB/s

B. 38.4 to 51.2 GB/s

C. 64.0 to 84.0 GB/s

D. 128.0 to 192.0 GB/s

The expected throughput for DDR5 modules is notably higher than its predecessors, representing a significant advancement in memory technology. DDR5, which is the latest standard in the DDR (Double Data Rate) family, is designed to support higher bandwidth to facilitate faster data transfer rates. The correct range of 38.4 to 51.2 GB/s reflects the capabilities of DDR5 due to its increased data rate, frequency improvements, and wider data bus compared to earlier generations like DDR4. This higher throughput provides enhanced performance for applications that require large amounts of data to be processed quickly, such as gaming, high-performance computing, and professional graphics applications. The other ranges, although appealing, exceed the realistic specifications of DDR5 and do not align with the established data rates that manufacturers have provided. This illustrates how DDR5 is intended to balance performance improvements while ensuring compatibility with existing systems and applications.

4. Which HDMI type allows validation of the connection with the display?

A. HDMI Type C

B. HDMI Digital Content Protection (HDCP)

C. High-Resolution HDMI

D. Standard HDMI

The correct answer is HDMI Digital Content Protection, also known as HDCP. This technology is designed specifically to prevent the unauthorized copying of digital content as it travels across connections like HDMI. When a device with an HDMI output connects to a display with an HDMI input, HDCP establishes a secure pathway for the transmission of content by validating that both devices support HDCP compliance. This validation process involves the source device checking with the display for the presence of a valid HDCP key, thus ensuring that the content is protected from piracy while being transmitted. If the connection is not HDCP compliant, the video or audio content may not be transmitted, thus reinforcing the role of HDCP in maintaining content protection. The other options do not provide this functionality related to validating connections for content protection. While HDMI Type C refers to a specific form factor of the HDMI connector, and High-Resolution HDMI is not a standardized term, Standard HDMI simply refers to the basic HDMI specifications without any specific mention of content protection or validation features. Therefore, HDCP is specifically designed to handle content protection and validation, making it the correct choice.

5. Which of the following best describes Stratum 0 in the NTP hierarchy?

A. Provides highly accurate time but is not directly connected to the networks

B. Distributes time received from Stratum 1 clocks

C. Synchronizes with Stratum 1 servers for accurate distribution

D. Classifies the accuracy of time across multiple servers

Stratum 0 in the NTP (Network Time Protocol) hierarchy refers to time sources that are highly accurate and serve as the foundational elements from which time is distributed. The term typically encompasses atomic clocks, GPS clocks, and other precise timekeeping mechanisms. These sources are not connected to networks themselves; rather, they provide the base time standard. The importance of Stratum 0 lies in its role of deriving accurate time, which is crucial for the synchronization process that occurs in higher strata. The other descriptions do not accurately capture the function of Stratum 0. For example, Stratum 1 servers do indeed distribute time but do so specifically from Stratum 0 sources, making the description of Stratum 1 more relevant to the tasks of distributing time. Similarly, Stratum 2 servers synchronize with Stratum 1 servers to ensure accurate time distribution but do not pertain to the characteristics of Stratum 0. Lastly, the classification of accuracy across multiple servers aligns more with concepts related to the overall NTP hierarchy rather than the specific function of Stratum 0, which is centered solely on the provision of precise time from non-networked sources.

6. Which encryption key length offers even higher security in the WPA3 protocol?

A. 128-bit

B. 256-bit

C. 192-bit

D. 512-bit

The correct answer is 192-bit. In the context of the WPA3 protocol, it provides enhanced security measures over its predecessor, WPA2. One significant improvement is the introduction of the use of 192-bit encryption, as part of its security suite designed to protect sensitive data and improve resistance against attacks. A key length of 192 bits strikes a balance between security and performance, offering a substantial increase in difficulty for potential attackers to crack the encryption compared to shorter key lengths such as 128-bit. While 256-bit encryption provides an even higher level of security, it is not a standard key length used within WPA3's core specifications, which aims to maintain a balance between robust security and the practical requirements for device performance. The option of 128-bit, while still secure for many applications, does not provide the same level of protection as 192-bit, especially within the framework of WPA3. Similarly, while 512-bit keys may theoretically offer superior security, they are not practical for implementation in real-world scenarios and are not supported by WPA3. Thus, 192-bit encryption stands out as the optimal choice within the WPA3 protocol for providing strong security.

7. What component begins cooling down liquid as it leaves the CPU?

A. Water block

B. Radiator

C. Liquid reservoir

D. Cooling fan

The component that begins cooling down liquid as it leaves the CPU is the radiator. After the liquid has absorbed heat from the CPU through the water block, it flows to the radiator. The radiator is specifically designed to dissipate heat effectively. It has a series of fins and tubes that increase the surface area for heat exchange. As air is blown over the radiator by attached fans, the heat from the liquid is transferred to the air, allowing the liquid to cool down before it returns to the CPU to repeat the cooling cycle. This process is essential in maintaining optimal CPU temperatures during operation, particularly in high-performance scenarios where cooling demands are greater. In contrast, while the water block is critical for transferring heat from the CPU to the liquid, it does not cool the liquid but rather heats it up. The liquid reservoir contains the coolant and ensures there is a sufficient volume for circulation but does not engage in cooling. The cooling fan aids in moving air across the radiator, but it is the radiator itself that is responsible for cooling the liquid as it exits the CPU.

8. Which type of memory module is characterized by the ability to use any size of module in any slot?

A. Paired Bank Memory Module

B. Single Bank Memory Module

C. Disk Cache

D. Mass storage devices

The correct choice is the single bank memory module because this type of module allows for flexible configurations in terms of size and placement. Single bank memory modules can be installed in any slot on the motherboard regardless of their capacity, making it easier to upgrade or expand a system's memory. This characteristic is particularly advantageous when mixed capacity modules are used, as it allows for a variety of configurations without the constraints that other module types might impose. In contrast, paired bank memory modules usually require modules to be installed in pairs of the same size and specifications to operate effectively, thus limiting flexibility. Disk cache is related to storage performance rather than the memory module configuration and is used to speed up access to data from disk storage. Mass storage devices refer to systems used for storing large amounts of data, such as hard drives and SSDs, which do not pertain to memory module configurations.

9. What allows users to configure installable options for a printer?

A. Color Management Tab

B. Device Settings Tab

C. Duplex Mode

D. Print Server

The Device Settings Tab is the correct answer because it provides a user interface specifically designed for configuring various options related to a printer's hardware settings and features. This tab typically includes settings for the printer's installed options such as memory capacity, paper trays, finishing options (like stapling or hole-punching), and other installable components that affect the printer's operations and capabilities. Accessing the Device Settings Tab allows users to tailor the printer configuration according to their specific requirements, ensuring optimal performance based on the tasks they need to perform. In contrast, the other choices do not focus on installing or configuring options. The Color Management Tab primarily deals with color settings and profiles rather than hardware configurations. Duplex Mode refers specifically to the ability of a printer to print on both sides of a page, which is just one feature rather than a comprehensive configuration menu. The Print Server is a network component that manages printer resources and jobs but does not provide direct access to installable options on the printer itself. Thus, the Device Settings Tab is the best choice for configuring installable options for a printer.

10. Which of the following Wi-Fi standards was introduced in the late 1990s?

A. 802.11a

B. 802.11g

C. 802.11b

D. 802.11n

The Wi-Fi standard that was introduced in the late 1990s is 802.11b. This standard was developed and ratified in 1999 and played a crucial role in popularizing wireless networking by providing higher speeds compared to its predecessors. It offered a maximum data transmission rate of 11 Mbps on the 2.4 GHz frequency, enabling a broader range of wireless applications and devices. In contrast, 802.11a was also developed around that time, but it was ratified simultaneously with 802.11b and did not see widespread adoption until later due to its more complex implementation and higher frequency of 5 GHz, which resulted in less range compared to 802.11b. Meanwhile, 802.11g was introduced later in 2003 and combined the best features of both 802.11a and 802.11b, and 802.11n, which was developed in the following years, further improved on speed and range. Understanding the historical context of these standards is important for comprehending the evolution of wireless technology and the significant impact of 802.11b in making Wi-Fi accessible and popular among users.