

TSA Forensic Technology Practice Test (Sample)

Study Guide



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SAMPLE

Questions

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- 1. What effect do sharp instruments have on the body?**
 - A. Create bruises**
 - B. Make incised wounds**
 - C. Cause blunt force trauma**
 - D. Leave no visible injuries**
- 2. What is the appropriate primary container for collecting and preserving dried blood from a surface?**
 - A. Plastic bag**
 - B. Glass vial**
 - C. Folded Paper**
 - D. Sealed jar**
- 3. Which technology is primarily used for DNA analysis?**
 - A. Gas Chromatography**
 - B. Polymerase Chain Reaction (PCR)**
 - C. Mass Spectrometry**
 - D. Electrophoresis**
- 4. Which of the following is an important step in processing a crime scene?**
 - A. Interview suspects immediately**
 - B. Identify and secure the scene**
 - C. Gather background information**
 - D. Leave the scene undisturbed**
- 5. In the context of cybersecurity, what is phishing?**
 - A. A technique used to analyze data**
 - B. An attempt to deceive individuals into providing confidential information**
 - C. A method for securing network connections**
 - D. A type of system update**

- 6. Which principle is crucial for maintaining the trustworthiness of digital evidence?**
- A. The principle of quick retrieval**
 - B. The principle of preserving the original state of evidence**
 - C. The principle of subjective interpretation**
 - D. The principle of immediate reporting**
- 7. Which term describes the analysis of data to find hidden or deleted information?**
- A. Data fragility**
 - B. Data exploitation**
 - C. Data recovery**
 - D. Data mining**
- 8. Which type of evidence is NOT typically collected at a crime scene?**
- A. Biological evidence**
 - B. Digital evidence**
 - C. Emotional evidence**
 - D. Chemical evidence**
- 9. Define "cyberbullying" as it relates to forensic investigations.**
- A. In-person harassment in schools leading to digital evidence**
 - B. Online harassment that may lead to legal action and involve digital evidence collection**
 - C. Physical confrontations recorded on social media**
 - D. A form of teasing among friends in digital spaces**
- 10. What is the primary purpose of ballistics in forensic science?**
- A. To analyze fingerprints at crime scenes**
 - B. To study projectiles and firearms**
 - C. To determine time of death**
 - D. To assess the chemical composition of substances**

Answers

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

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Explanations

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1. What effect do sharp instruments have on the body?

- A. Create bruises
- B. Make incised wounds**
- C. Cause blunt force trauma
- D. Leave no visible injuries

Sharp instruments primarily create incised wounds, which are characterized by clean cuts in the skin and underlying tissues. These wounds occur when a sharp object, such as a knife or razor blade, slices through the skin, resulting in distinct and precise edges. This is in contrast to other types of wounds that may be caused by blunt or non-sharp objects. Incised wounds are often associated with significant bleeding due to the cutting of blood vessels, which can be more extensive than in other types of injuries. They also have a distinctive appearance that forensic professionals can analyze to understand the nature of the injury and potentially the circumstances surrounding it. This understanding of sharp instruments' effects on the body is essential in forensic settings, where the examination of wounds can provide critical information about the events that led to an injury or death.

2. What is the appropriate primary container for collecting and preserving dried blood from a surface?

- A. Plastic bag
- B. Glass vial
- C. Folded Paper**
- D. Sealed jar

The appropriate primary container for collecting and preserving dried blood from a surface is folded paper. This choice is based on the properties of the materials and the preservation needs of biological evidence. When dealing with dried blood, it's crucial to avoid contamination and preserve the integrity of the sample. Folded paper is often used because it allows the sample to be transported without being compressed or disturbed, which could compromise the evidence. Additionally, paper is breathable, reducing the risk of moisture buildup that could lead to microbial growth or degradation of the blood sample. This method also minimizes the risk of the evidence coming into contact with any residues that might be found in plastic, glass, or sealed containers. Other options do not suit the specific needs of transporting dried blood. For instance, a plastic bag may create a humid environment that is detrimental to blood samples. Glass vials, while sturdy, can also improperly contain the sample and may not provide the optimal environment for preservation. Sealed jars, while good for preventing contamination, can trap moisture, which poses the same risk of degradation as plastic bags, making them unsuitable for this type of evidence collection.

3. Which technology is primarily used for DNA analysis?

- A. Gas Chromatography
- B. Polymerase Chain Reaction (PCR)**
- C. Mass Spectrometry
- D. Electrophoresis

Polymerase Chain Reaction (PCR) is the primary technology used for DNA analysis due to its ability to amplify small segments of DNA, making it easier to study and analyze genetic material. PCR allows forensic scientists to produce millions of copies of a specific DNA sequence from a tiny initial sample, which is particularly valuable in forensic investigations where DNA evidence may be scarce or degraded. This amplification process is followed by various methods of analysis, but PCR is crucial as it enables the detection and examination of DNA profiles that are necessary for applications such as identification in criminal cases or paternity testing. By generating sufficient quantities of DNA, PCR paves the way for further analyses, such as sequencing or profiling, which can lead to meaningful conclusions regarding identity and familial relationships. The other technologies mentioned, while important in their own contexts, do not serve as the fundamental method for amplifying DNA. For instance, gas chromatography is widely used for analyzing compounds but is not suited for DNA amplification. Mass spectrometry offers detailed analysis of molecular weight and structure but does not amplify DNA. Electrophoresis is primarily a technique used for sorting and visualizing DNA fragments rather than for amplifying DNA itself. Thus, PCR stands out as the essential method for performing DNA analysis effectively.

4. Which of the following is an important step in processing a crime scene?

- A. Interview suspects immediately
- B. Identify and secure the scene**
- C. Gather background information
- D. Leave the scene undisturbed

The identification and securing of the scene is a critical aspect of processing a crime scene as it establishes a controlled environment for an investigation to take place. This step ensures that any evidence present is preserved from contamination or tampering, which is vital for maintaining the integrity and authenticity of the evidence collected. By securing the scene, law enforcement can limit access to authorized personnel only, which is essential in preventing the loss of potential evidence or alterations that could occur with indiscriminate access. In the context of the entire investigative process, after securing the scene, investigators can conduct a thorough examination and gather information effectively. While interviewing suspects, gathering background information, and leaving the scene undisturbed might be part of different stages of an investigation, these actions should occur after the scene has been correctly identified and secured to ensure all evidentiary protocols are followed properly. This foundational step lays the groundwork for a successful forensic investigation.

5. In the context of cybersecurity, what is phishing?

- A. A technique used to analyze data
- B. An attempt to deceive individuals into providing confidential information**
- C. A method for securing network connections
- D. A type of system update

Phishing is a cybersecurity technique that involves attempts to deceive individuals into providing confidential information, such as usernames, passwords, credit card numbers, or other sensitive data. This is typically carried out through fraudulent communications, often appearing to come from legitimate sources, such as banks, online services, or well-known companies. The deception can occur via email, social media messages, or even phone calls. The key aspect of phishing is its nature as a form of social engineering, where attackers exploit human psychology to trick users into making security mistakes. By mimicking a trustworthy entity, they create a sense of urgency or trust, prompting the victim to disclose sensitive information or click on suspicious links that may lead to malware installations. Understanding phishing helps individuals recognize risks and take proactive steps to protect their personal and financial information from cybercriminals.

6. Which principle is crucial for maintaining the trustworthiness of digital evidence?

- A. The principle of quick retrieval
- B. The principle of preserving the original state of evidence**
- C. The principle of subjective interpretation
- D. The principle of immediate reporting

The principle of preserving the original state of evidence is essential for maintaining the trustworthiness of digital evidence. This principle ensures that the integrity of the data is maintained from the point of collection through analysis and presentation in court. By preserving the original evidence, investigators can provide a clear and reliable chain of custody, which is critical for establishing that the evidence has not been altered, tampered with, or contaminated in any way. In forensic investigations, digital evidence can be particularly vulnerable to alteration. Maintaining the original state means utilizing methods such as creating forensic images or copies of data so that the original files remain untouched. This preservation acts as a safeguard against any potential disputes regarding the authenticity and reliability of the evidence, thereby bolstering its credibility in legal proceedings. Other principles, while relevant in forensic practice, do not directly address the core concern of preserving evidence integrity. Quick retrieval focuses on how fast evidence can be accessed, subjective interpretation relates to personal biases in evaluating evidence, and immediate reporting pertains to timely communication of findings, but none of these principles prioritize the imperatives of preserving evidence in its original, unaltered state.

7. Which term describes the analysis of data to find hidden or deleted information?

- A. Data fragility**
- B. Data exploitation**
- C. Data recovery**
- D. Data mining**

The term that accurately describes the analysis of data to find hidden or deleted information is data recovery. This process involves retrieving information that may not be easily accessible due to deletion, corruption, or loss of data. Data recovery techniques are crucial in forensic technology as they allow investigators to uncover vital evidence that might be critical in legal cases or security incidents. This could involve the restoration of files that were deliberately deleted or retrieving data from devices that are damaged or malfunctioning. Data recovery encompasses various methods and tools designed specifically for extracting and reconstructing lost information, making it an essential component in forensic investigations. Other terms listed do not specifically pertain to retrieving hidden or deleted data in the same manner. For example, data mining involves analyzing large datasets to discover patterns and trends, but it does not primarily focus on recovering deleted information. Similarly, data exploitation and data fragility do not directly relate to the functionality of recovering lost data.

8. Which type of evidence is NOT typically collected at a crime scene?

- A. Biological evidence**
- B. Digital evidence**
- C. Emotional evidence**
- D. Chemical evidence**

Emotional evidence is not typically collected at a crime scene because it does not consist of physical materials or objects that can be documented or preserved in a forensic investigation. Unlike biological, digital, and chemical evidence, which can include tangible items such as DNA, computer files, or substances like drugs, emotional evidence is subjective and relates to feelings or states of mind that cannot be physically gathered or analyzed. In forensic investigations, the focus is on items that can provide concrete information about the crime, such as biological samples that may contain DNA, digital evidence that may offer insights into communications or activities associated with the crime, and chemical evidence that can indicate the presence of illegal substances or explosives. Emotional evidence, being intangible and inherently personal, does not fit into the categories of evidence that forensic science typically examines or collects at a crime scene.

9. Define "cyberbullying" as it relates to forensic investigations.

- A. In-person harassment in schools leading to digital evidence**
- B. Online harassment that may lead to legal action and involve digital evidence collection**
- C. Physical confrontations recorded on social media**
- D. A form of teasing among friends in digital spaces**

Cyberbullying refers to the act of harassing, threatening, or intimidating individuals through the use of digital platforms, such as social media, messaging apps, or websites. In the context of forensic investigations, this behavior is critical because it typically involves the collection and analysis of digital evidence. This evidence may include text messages, social media posts, email exchanges, and other forms of online communication that can provide crucial information about the perpetrator and the victim, as well as the nature and extent of the harassment. The significance of this definition lies in the potential legal ramifications associated with cyberbullying. In many jurisdictions, cyberbullying can lead to legal actions, which necessitate a thorough investigation to gather and preserve electronic evidence. Forensic investigators play a vital role in this process, utilizing various tools and methodologies to capture relevant digital content that may be presented in court or to legal authorities. Therefore, the definition involving online harassment that may lead to legal action and requires the collection of digital evidence aligns perfectly with the realities of how forensic technology is applied in cases of cyberbullying, highlighting the importance of digital footprints in modern harassment scenarios.

10. What is the primary purpose of ballistics in forensic science?

- A. To analyze fingerprints at crime scenes**
- B. To study projectiles and firearms**
- C. To determine time of death**
- D. To assess the chemical composition of substances**

The primary purpose of ballistics in forensic science is to study projectiles and firearms. This area of forensic science focuses on examining the behavior and effects of projectiles, which includes bullets and other types of ammunition, as they are discharged from firearms. By analyzing the characteristics of these projectiles, forensic experts can gather valuable evidence related to criminal incidents, such as the type of weapon used, the direction and distance of fire, and sometimes even link specific projectiles to individual firearms through comparison of markings left on the bullets. This field plays a crucial role in investigations involving gun-related crimes, helping to reconstruct shooting events and providing insights that can support criminal cases. The analysis of ballistics ultimately assists law enforcement in understanding the mechanisms of a shooting incident, drawing connections between ballistic evidence and suspects or crime scenes.