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/test-bank-introduction-to-forensic-chemistry-1e-elkins

Chapter 1 An Introduction to Forensic Chemistry and Physical Evidence

A. Learning Objectives

1. Explain the difference between forensic science, criminalistics, and forensic chemistry
2. Understand the historical development of forensic science
3. Know the locations and identities of several of forensic laboratories
4. List the units of forensic laboratories that use forensic chemistry
5. Identify physical evidence in a forensic case
6. Differentiate between class and individual characteristics for physical evidence types
7. Identify the SWGDRUG categories of analytical techniques by category
8. Understand the role of the forensic chemist in the laboratory, in the forensic community and in court

B. Test Questions-Multiple Choice (**correct answer in bold**)

1. Only state laboratories conduct testing of forensic evidence.
   a) True
   b) False

2. All labs must use the same testing scheme for analyzing forensic evidence.
   a) True
   b) False

3. Expert witness may work in
   a) academic labs.
   b) public forensic labs.
   c) private forensic labs.
   d) all of the above.

4. Define Criminalistics.
   a) A branch of forensic science that applies science to law through the recognition, documentation, collection, preservation, and analysis of physical evidence.
   b) The branch of science devoted to the application of science to criminal and civil law that are enforced by police agencies in the criminal justice system.
   c) A branch of science devoted to determining the time, manner, and cause of death.
   d) A branch of science devoted to determining genetic lineages.

5. Which of the following items would not be a piece of physical evidence collected by crime scene investigators?
   a) Victim's clothing
   b) Investigator's clothing
   c) Suspect's clothing
   d) Blood splatter

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6. For quality control, evidence samples may be split into three parts. These parts are referred to as ____.
   a) replicates
   b) controls
   c) calibration standards
   d) reference samples
   e) all of the above

7. Establishing the exact whereabouts of an item of evidence and under whose control it was from the time of its collection to its admissibility as evidence in court, is known as maintaining the:
   a) Scientific method
   b) Quality control
   c) Chain of command
   d) Establishing a linkage
   e) Chain of custody

8. A function of a forensic scientist includes:
   a) furnishing training on the proper collection of physical evidence.
   b) analysis of physical evidence.
   c) providing expert testimony.
   d) all of the above.

C. Test Questions- Open-ended

1. Historically, how did forensic chemistry develop? What field is the basis for modern forensic chemistry?
2. Why must personal protection equipment be worn when handling physical evidence?
3. Which laboratories perform testing on forensic evidence? What testing do they perform?
4. Explain the difference between class and individual characteristics. Give an example of each.
5. Define the three categories of SWGDRUG testing and give an example of each.

D. Laboratory Activities

1. Choose a role in "The Lab" research integrity role playing exercise (https://ori.hhs.gov/TheLab/). Ask students to write about the choices they made in the exercise and reflect upon the impacts of their choices.
2. Have students research an old forensic chemical method in the public domain (pre-1923 literature) and describe the chemicals needed, methods, and how it works chemically.

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Chapter 2 Chemical tests

A. Learning Objectives

1. Explain the difference between presumptive and confirmatory drug tests
2. Describe the uses of color tests for drugs at the crime scene and in the forensic lab
3. Recognize the major chemical color tests for drugs
4. Describe chemical color tests and microcrystalline tests
5. Explain the chemical mechanisms of several color tests

B. Test Questions-Multiple Choice (**correct answer in bold**)

1. Which of the following chemical tests is the best first screening test for drugs?
   a) Marquis
   b) Chen's
   c) Duquenois-Levine
   d) Zimmerman's

2. The Duquenois-Levine test is a screening test for _____.
   a) heroin
   b) marijuana
   c) cocaine
   d) psilocin
   e) caffeine

3. ____ tests identify drugs by the size and shape of their crystals formed when the drug is mixed with specific reagents.
   a) HPLC
   b) color
   c) TLC
   d) microcrystalline

4. Which of the following chemical tests is a screening test for cocaine?
   a) Marquis
   b) Scott's
   c) Duquenois-Levine
   d) Van Urk's

5. A white precipitate is a positive result with this test used to detect the presence of alkaloids.
   a) Dillie-Koppanyi
   b) Scott
   c) Duquenois-Levine
   d) Marquis
   e) Mayer's

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