

***Forensic Science: From the Crime Scene, 4e* (Saferstein)**
Chapter 1 Introduction

1.1 Multiple Choice

1) Forensic science is the application of science to:

- A) crime-scene reconstruction.
- B) civil laws.
- C) criminal laws.
- D) both civil and criminal laws.

Answer: D

Page Ref: 2

Level: Basic

Objective: Distinguish between forensic science and criminalistics.

2) The fictional character of Sherlock Holmes was created by:

- A) Dalton.
- B) Doyle.
- C) Darwin.
- D) Denton.

Answer: B

Page Ref: 7

Level: Basic

Objective: Outline the main historical developments of forensic science.

3) Who is known as the "father of forensic toxicology"?

- A) Orfila
- B) Locard
- C) Osborn
- D) Lattes

Answer: A

Page Ref: 5

Level: Intermediate

Objective: Outline the main historical developments of forensic science.

4) Who developed the system known as anthropometry?

- A) Goddard
- B) Gross
- C) Bertillon
- D) Galton

Answer: C

Page Ref: 5

Level: Basic

Objective: Outline the main historical developments of forensic science.

5) Who undertook the first definitive study of fingerprints as a method of personal identification?

- A) Gross
- B) Lattes
- C) Locard
- D) Galton

Answer: D

Page Ref: 5

Level: Basic

Objective: Outline the main historical developments of forensic science.

6) Who devised a technique for determining the blood group of a dried bloodstain, which he applied to criminal investigations?

- A) Lattes
- B) Gross
- C) Locard
- D) Bertillon

Answer: A

Page Ref: 7-8

Level: Basic

Objective: Outline the main historical developments of forensic science.

7) Who established the comparison microscope as the indispensable tool of the modern firearms examiner?

- A) Goddard
- B) Lattes
- C) Gross
- D) Galton

Answer: A

Page Ref: 8

Level: Basic

Objective: Outline the main historical developments of forensic science.

8) Who wrote the first treatise describing the application of science to the field of criminal investigation?

- A) Locard
- B) Osborn
- C) Gross
- D) Galton

Answer: C

Page Ref: 5

Level: Intermediate

Objective: Outline the main historical developments of forensic science.

9) Who established the first workable crime laboratory?

- A) Osborn
- B) Locard
- C) Bertillon
- D) Galton

Answer: B

Page Ref: 8

Level: Intermediate

Objective: Outline the main historical developments of forensic science.

10) What is the oldest forensic laboratory in the United States?

- A) New York City Police Department
- B) Federal Bureau of Investigation
- C) Secret Service
- D) Los Angeles Police Department

Answer: D

Page Ref: 11

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

11) Which entity maintains the largest crime laboratory in the world?

- A) Scotland Yard
- B) Royal Canadian Mounted Police
- C) Federal Bureau of Investigation
- D) Los Angeles Police Department

Answer: C

Page Ref: 11

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

12) Which of the following would *not* be included in the work of the biology unit of a crime lab?

- A) Blood typing
- B) Comparison of hairs
- C) DNA profiling
- D) Fingerprint analysis

Answer: D

Page Ref: 15

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

13) Which unit is responsible for examining body fluids and organs for the presence of drugs and poisons?

- A) Toxicology unit
- B) Physical science unit
- C) Biology unit
- D) Trace evidence unit

Answer: A

Page Ref: 16

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

14) Which one of the following people did *not* make a contribution to forensic toxicology?

- A) Valentin Ross
- B) Alphonse Bertillon
- C) Carl Wilhelm Scheele
- D) Mathieu Orfila

Answer: B

Page Ref: 5

Level: Intermediate

Objective: Outline the main historical developments of forensic science.

15) In *Kumho Tire Co., Ltd. v. Carmichael*, the US Supreme Court ruled that the "gatekeeping" role of a trial judge:

- A) was restricted to scientific testimony.
- B) applied only to cases involving capital crimes.
- C) was subject to appeal by a higher court.
- D) applied to all expert testimony.

Answer: D

Page Ref: 23

Level: Intermediate

Objective: Explain how physical evidence is analyzed and presented in the courtroom by the forensic scientist, and how admissibility of evidence is determined in the courtroom.

16) The concept of "general acceptance" of scientific evidence relates to what?

- A) *Frye* standard
- B) Exclusionary rule
- C) First Amendment
- D) Miranda warnings

Answer: A

Page Ref: 21

Level: Intermediate

Objective: Explain how physical evidence is analyzed and presented in the courtroom by the forensic scientist, and how admissibility of evidence is determined in the courtroom.

17) Which of the following makes a false statement? An expert witness must be able to demonstrate:

- A) education in his/her area of expertise.
- B) a formal degree in forensic science.
- C) significant experience in a relevant field.
- D) working knowledge of the subject matter.

Answer: B

Page Ref: 24-26

Level: Intermediate

Objective: Explain how physical evidence is analyzed and presented in the courtroom by the forensic scientist, and how admissibility of evidence is determined in the courtroom.

18) Who is the final evaluator of forensic evidence?

- A) Police
- B) Jury
- C) Accused
- D) Media

Answer: B

Page Ref: 20

Level: Intermediate

Objective: Explain how physical evidence is analyzed and presented in the courtroom by the forensic scientist, and how admissibility of evidence is determined in the courtroom.

19) Bite marks would be *least* likely to be found in cases involving:

- A) sexual abuse.
- B) murder.
- C) arson.
- D) assault.

Answer: C

Page Ref: 17

Level: Intermediate

Objective: Understand what specialized forensic services, aside from the crime laboratory, are generally available to law enforcement personnel.

20) Forensic odontology refers to the study of which of the following?

- A) Teeth
- B) Drugs
- C) Bones
- D) Rocks

Answer: A

Page Ref: 17

Level: Intermediate

Objective: Understand what specialized forensic services, aside from the crime laboratory, are generally available to law enforcement personnel.

21) The case of *Coppolino v. State* highlights issues dealing with what?

- A) Search and seizure
- B) Admissibility of the polygraph
- C) Acceptability of new scientific tests
- D) Warrantless searches

Answer: C

Page Ref: 23

Level: Intermediate

Objective: Explain how physical evidence is analyzed and presented in the courtroom by the forensic scientist, and how admissibility of evidence is determined in the courtroom.

22) The scientific method requires that scientific evidence be validated by what means?

- A) Formulating pertinent questions
- B) Formulating hypotheticals
- C) Performing experiments
- D) All of the above

Answer: D

Page Ref: 21

Level: Intermediate

Objective: Distinguish between forensic science and criminalistics.

23) Which of the following services does *not* normally lie within the expertise of the forensic scientist?

- A) Drug identification
- B) Wood comparisons
- C) Document examination
- D) Polygraph examination

Answer: D

Page Ref: 16

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

24) What judicial case set forth the most current guidelines for determining the admissibility of scientific examinations in the federal courts?

- A) *Frye v. United States*
- B) *Daubert v. Merrell Dow Pharmaceuticals*
- C) *Coppolino v. State*
- D) *Mapp v. United States*

Answer: B

Page Ref: 22

Level: Intermediate

Objective: Explain how physical evidence is analyzed and presented in the courtroom by the forensic scientist, and how admissibility of evidence is determined in the courtroom.

25) The effectiveness of an expert's testimony is almost always dependent on:

- A) the ability of the expert to talk in clear, concise language.
- B) the educational background of the expert.
- C) the scientific validity of the tests used.
- D) All of the above

Answer: D

Page Ref: 24-26

Level: Intermediate

Objective: Explain how physical evidence is analyzed and presented in the courtroom by the forensic scientist, and how admissibility of evidence is determined in the courtroom.

26) The dramatization of forensic science on television has led to a phenomenon known as what?

- A) NCIS effect
- B) NYPD effect
- C) CSI effect
- D) LAPD effect

Answer: C

Page Ref: 4

Level: Basic

Objective: Distinguish between forensic science and criminalistics.

27) The lay witness provides testimony that relies on what?

- A) Scientific education
- B) Personal opinions
- C) Personal knowledge
- D) Scientific experience

Answer: C

Page Ref: 25

Level: Intermediate

Objective: Explain how physical evidence is analyzed and presented in the courtroom by the forensic scientist, and how admissibility of evidence is determined in the courtroom.

28) What U.S. Supreme Court case made it necessary for the forensic scientist to appear in court?

- A) *Melendez-Diaz v. Massachusetts*
- B) *Crawford v. Washington*
- C) *Coppolino v. State*
- D) *Frye v. United States*

Answer: A

Page Ref: 26

Level: Basic

Objective: Explain how physical evidence is analyzed and presented in the courtroom by the forensic scientist, and how admissibility of evidence is determined in the courtroom.

29) What area of forensic science examines the relationship between human behavior and legal proceedings?

- A) Forensic psychology
- B) Forensic sociology
- C) Forensic pathology
- D) Forensic psychiatry

Answer: D

Page Ref: 17

Level: Basic

Objective: Understand what specialized forensic services, aside from the crime laboratory, are generally available to law enforcement personnel.

30) What area of forensic science is concerned with failure analysis, accident reconstruction, and causes and origins of fires or explosions?

- A) Forensic engineering
- B) Forensic psychiatry
- C) Forensic anthropology
- D) Forensic odontology

Answer: A

Page Ref: 17

Level: Basic

Objective: Understand what specialized forensic services, aside from the crime laboratory, are generally available to law enforcement personnel.

31) The current system of crime laboratories in the United States can best be described as which of the following?

- A) Centralized
- B) Regional
- C) Decentralized
- D) National

Answer: C

Page Ref: 12

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

32) Approximately how many crime labs are currently operating in the United States (including federal, state, county, and municipal labs)?

- A) 250
- B) 400
- C) 150
- D) 200

Answer: B

Page Ref: 12

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

33) Which of the following can be said to explain the rapid growth of crime labs during the last forty years?

- A) Supreme Court decisions in the 1960s
- B) A staggering increase in crime rates in the United States
- C) The advent of DNA profiling
- D) All of the above

Answer: D

Page Ref: 12

Level: Basic

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

34) In the case of *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, the U.S. Supreme Court advocated that a "gatekeeper" determine the admissibility and reliability of scientific evidence.

Who is this gatekeeper?

- A) Expert witness
- B) Prosecutor
- C) Jury
- D) Trial judge

Answer: D

Page Ref: 22

Level: Intermediate

Objective: Explain how physical evidence is analyzed and presented in the courtroom by the forensic scientist, and how admissibility of evidence is determined in the courtroom.

35) The eleven sections of the American Academy of Forensic Science include all of the following *except*:

- A) general.
- B) arson/explosives.
- C) jurisprudence.
- D) criminalistics.

Answer: B

Page Ref: 2

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

36) Which of the following services are typically provided to law enforcement by crime laboratories?

- A) Pathology
- B) Criminalistics
- C) Odontology
- D) Psychology

Answer: B

Page Ref: 16

Level: Basic

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

37) What is the major problem facing the forensic DNA community?

- A) Contamination of DNA samples by evidence collectors
- B) Backlog of unanalyzed DNA samples
- C) Lack of recent advancements in DNA technology
- D) Existence of computerized DNA databases

Answer: B

Page Ref: 13

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

38) Which unit applies principles and techniques of chemistry, physics, and geology to the identification and comparison of crime scene evidence?

- A) Forensic geology
- B) Physical science
- C) Toxicology
- D) Biology

Answer: B

Page Ref: 14

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

39) Specially trained personnel called _____ are employed by some crime laboratories on 24-hour call to retrieve evidence and have all the proper tools and supplies for proper collection and packaging of evidence at their disposal.

- A) evidence officers
- B) crime scene investigators
- C) evidence technicians
- D) forensic pathologists

Answer: C

Page Ref: 26

Level: Intermediate

Objective: Understand what specialized forensic services, aside from the crime laboratory, are generally available to law enforcement personnel.

40) The current system of crime laboratories in the United States can best be described as:

- A) centralized.
- B) regional.
- C) decentralized.
- D) national.

Answer: C

Page Ref: 12

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

1.2 True/False

1) Karl Landsteiner and Leone Lattes are associated with the area of blood typing.

Answer: TRUE

Page Ref: 7

Level: Basic

Objective: Outline the main historical developments of forensic science.

2) Colin Pitchfork was the first individual exonerated using DNA profiling.

Answer: FALSE

Page Ref: 9

Level: Intermediate

Objective: Outline the main historical developments of forensic science.

3) Dr. Walter C. McCrone made significant contributions to forensic science involving microscopy.

Answer: TRUE

Page Ref: 8

Level: Basic

Objective: Outline the main historical developments of forensic science.

4) The increase in crime rates in the United States has led to an increase in the number of crime laboratories.

Answer: TRUE

Page Ref: 12

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

5) All illicit drug seizures must be sent to a forensic laboratory for confirmatory analysis.

Answer: TRUE

Page Ref: 12

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

6) It is the responsibility of the forensic investigator to determine innocence or guilt.

Answer: FALSE

Page Ref: 24

Level: Intermediate

Objective: Explain how physical evidence is analyzed and presented in the courtroom by the forensic scientist, and how admissibility of evidence is determined in the courtroom.

7) The Bureau of Alcohol, Tobacco, Firearms, and Explosives is a state-run agency.

Answer: FALSE

Page Ref: 13

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

8) The current system of crime laboratories in the United States is decentralized.

Answer: TRUE

Page Ref: 13

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

9) Forensic odontologists look at bones to identify victims.

Answer: FALSE

Page Ref: 17

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

10) The principle of "general acceptance" comes from *Frye v. United States*.

Answer: TRUE

Page Ref: 21

Level: Basic

Objective: Explain how physical evidence is analyzed and presented in the courtroom by the forensic scientist, and how admissibility of evidence is determined in the courtroom.

11) The American Academy of Forensic Sciences is the largest forensic science organization in the world.

Answer: TRUE

Page Ref: 2

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

12) Sir Arthur Conan Doyle's Sherlock Holmes had a large influence on popularizing scientific crime-detection methods.

Answer: TRUE

Page Ref: 7

Level: Basic

Objective: Outline the main historical developments of forensic science.

13) The United States does not have a national system of forensic laboratories.

Answer: TRUE

Page Ref: 11

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

14) One major problem in the forensic DNA community is the backlog of unanalyzed DNA samples.

Answer: TRUE

Page Ref: 13

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

15) Regional laboratories have diminished the accessibility of a crime laboratory to many local law enforcement agencies.

Answer: FALSE

Page Ref: 13

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

16) Soil analysis is performed by the biology unit.

Answer: FALSE

Page Ref: 15

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

17) The firearms unit may also analyze tool marks.

Answer: TRUE

Page Ref: 15

Level: Basic

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

18) A voiceprint transforms a visual graphic display into speech.

Answer: FALSE

Page Ref: 16

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

19) The five units of a basic a crime lab are the physical science unit, the biology unit, the firearms unit, the document examination unit, and the photography unit.

Answer: TRUE

Page Ref: 14—15

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

20) Physical evidence is subject to bias.

Answer: FALSE

Page Ref: 20

Level: Basic

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

21) One of the earliest crime laboratories was founded by Albert Osborn.

Answer: FALSE

Page Ref: 8

Level: Intermediate

Objective: Outline the main historical developments of forensic science.

22) The case of *Frye v. United States* deals with the legal issue of general acceptance of scientific principles.

Answer: TRUE

Page Ref: 21

Level: Intermediate

Objective: Explain how physical evidence is analyzed and presented in the courtroom by the forensic scientist, and how admissibility of evidence is determined in the courtroom.

23) Performing a polygraph examination is not normally within the expertise of the forensic scientist.

Answer: TRUE

Page Ref: 16

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

24) The effectiveness of an expert's testimony does not usually depend on the educational background of the expert.

Answer: FALSE

Page Ref: 24

Level: Basic

Objective: Explain how physical evidence is analyzed and presented in the courtroom by the forensic scientist, and how admissibility of evidence is determined in the courtroom.

25) Forensic science is the application of science to criminal laws only.

Answer: FALSE

Page Ref: 2

Level: Basic

Objective: Distinguish between forensic science and criminalistics.

26) Locard's exchange principle states that, whenever two objects come into contact with one another, there is exchange of materials between them.

Answer: TRUE

Page Ref: 8

Level: Basic

Objective: Outline the main historical developments of forensic science.

27) In 1972, New York began creating an integrated network of state-operated forensic laboratories consisting of regional and satellite facilities.

Answer: FALSE

Page Ref: 11

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

28) The increase in U.S. crime rates since the 1960s has not had any effect on the growth of crime laboratories.

Answer: FALSE

Page Ref: 12

Level: Basic

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

29) The federal government has no single law enforcement or investigative agency that has unlimited jurisdiction throughout the country.

Answer: TRUE

Page Ref: 13

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

30) Differences in local laws have no effect on the types of services offered by crime labs in different communities.

Answer: FALSE

Page Ref: 13

Level: Basic

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

31) The comparison of hairs and fibers would be performed in the biology unit.

Answer: TRUE

Page Ref: 15

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

32) The examination of garments and other objects in order to detect firearm discharge residues would be performed in the biology unit.

Answer: FALSE

Page Ref: 15

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

33) Providing expert testimony is not one of the main functions of a forensic scientist.

Answer: FALSE

Page Ref: 24

Level: Basic

Objective: Explain how physical evidence is analyzed and presented in the courtroom by the forensic scientist, and how admissibility of evidence is determined in the courtroom.

34) An expert witness gives testimony on events or observations that arise from personal knowledge.

Answer: FALSE

Page Ref: 24

Level: Intermediate

Objective: Explain how physical evidence is analyzed and presented in the courtroom by the forensic scientist, and how admissibility of evidence is determined in the courtroom.

35) A lay witness's testimony cannot usually contain the personal opinions of the witness.

Answer: TRUE

Page Ref: 25

Level: Intermediate

Objective: Explain how physical evidence is analyzed and presented in the courtroom by the forensic scientist, and how admissibility of evidence is determined in the courtroom.

36) The physical science unit is responsible for examining burned or charred documents.

Answer: FALSE

Page Ref: 14

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

37) The toxicology unit would determine the amount of alcohol consumed by an individual.

Answer: TRUE

Page Ref: 16

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

38) The physical science unit would perform soil and mineral analysis.

Answer: TRUE

Page Ref: 14

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

39) Forensic anthropologists can use dental records such as X-rays, dental casts, and a photograph of a person's smile to compare a set of dental remains and a suspected victim.

Answer: FALSE

Page Ref: 17

Level: Intermediate

Objective: Understand what specialized forensic services, aside from the crime laboratory, are generally available to law enforcement personnel.

1.3 Fill in the Blank

1) Forensic science is the application of science to the _____.

Answer: law

Page Ref: 2

Level: Basic

Objective: Distinguish between forensic science and criminalistics.

2) The Chinese manuscript Yi Yu Ji is one of the earliest records of the application of forensics to _____ cases.

Answer: criminal

Page Ref: 4

Level: Intermediate

Objective: Outline the main historical developments of forensic science.

3) In 1828, William Nichol invented the _____ microscope.

Answer: polarizing

Page Ref: 5

Level: Intermediate

Objective: Outline the main historical developments of forensic science.

4) Fingerprinting replaced _____ as a method of personal identification.

Answer: anthropometry

Page Ref: 5

Level: Intermediate

Objective: Outline the main historical developments of forensic science.

5) The principle that states that a cross-transfer of materials occurs when two objects come into contact with each other is known as _____ Exchange Principle.

Answer: Locard's

Page Ref: 8

Level: Basic

Objective: Outline the main historical developments of forensic science.

6) Goddard's work helped to establish the _____ microscope as the indispensable tool of the firearms examiner.

Answer: comparison

Page Ref: 8

Level: Intermediate

Objective: Outline the main historical developments of forensic science.

7) Four major federal crime laboratories are those of the Drug Enforcement Administration, the Federal Bureau of Investigation, the Bureau of Alcohol, Tobacco, Firearms, and Explosives, and the _____.

Answer: USPS

Page Ref: 13

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

8) The _____ science unit applies principles and techniques of chemistry, physics, and geology to the identification and comparison of crime-scene evidence.

Answer: physical

Page Ref: 14

Level: Basic

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

9) The document examination unit studies the handwriting and _____ on questioned documents to ascertain their authenticity and/or source.

Answer: typewriting

Page Ref: 15

Level: Basic

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

10) The _____ analysis unit analyzes telephoned threats and audio-recorded messages.

Answer: voiceprint

Page Ref: 16

Level: Basic

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

11) Collecting evidence from a cell phone is an example of forensic _____ and digital analysis.

Answer: computer

Page Ref: 20

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

12) The forensic scientist should be an advocate only of the _____.

Answer: truth

Page Ref: 24

Level: Intermediate

Objective: Explain how physical evidence is analyzed and presented in the courtroom by the forensic scientist, and how admissibility of evidence is determined in the courtroom.

13) _____ technicians help criminal investigators retrieve evidence.

Answer: Evidence

Page Ref: 26

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

14) Extensive information about forensic science can be found on the _____.

Answer: internet

Page Ref: 28

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

15) The judicial case that set forth the current guidelines for determining the admissibility of scientific examinations in the federal courts is _____.

Answer: *Daubert*

Page Ref: 22

Level: Intermediate

Objective: Explain how physical evidence is analyzed and presented in the courtroom by the forensic scientist, and how admissibility of evidence is determined in the courtroom.

16) _____ is considered to be the "father of forensic toxicology."

Answer: Orfila

Page Ref: 5

Level: Intermediate

Objective: Outline the main historical developments of forensic science.

17) _____ undertook the first definitive study of fingerprints and developed a methodology of classifying them for filing.

Answer: Galton

Page Ref: 5

Level: Intermediate

Objective: Outline the main historical developments of forensic science.

18) _____ was the first to use a comparison microscope to analyze bullets to determine whether they were fired from the same gun.

Answer: Goddard

Page Ref: 8

Level: Intermediate

Objective: Outline the main historical developments of forensic science.

19) The fee-for-service concept has encouraged the creation of a number of _____ laboratories.

Answer: private

Page Ref: 14

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

20) The _____ unit performs DNA profiling of dried bloodstains and other body fluids.

Answer: biology

Page Ref: 15

Level: Basic

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

21) The _____ unit examines body fluids and organs to determine the presence or absence of drugs and poisons.

Answer: toxicology

Page Ref: 16

Level: Basic

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

22) The _____ investigation unit dispatches specially trained personnel to the crime scene to collect and preserve physical evidence that will later be processed at the crime laboratory.

Answer: crime-scene

Page Ref: 16-17

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

23) The case of _____ assigned the trial judge the task of ensuring that an expert's testimony rests on a reliable foundation and is relevant to the task at hand.

Answer: *Daubert*

Page Ref: 22

Level: Intermediate

Objective: Explain how physical evidence is analyzed and presented in the courtroom by the forensic scientist, and how admissibility of evidence is determined in the courtroom.

24) The _____ witness evaluates evidence that the court lacks the expertise to do.

Answer: expert

Page Ref: 24

Level: Intermediate

Objective: Explain how physical evidence is analyzed and presented in the courtroom by the forensic scientist, and how admissibility of evidence is determined in the courtroom.

25) A _____ witness must give testimony on events or observations that arise from personal knowledge.

Answer: lay

Page Ref: 25

Level: Intermediate

Objective: Explain how physical evidence is analyzed and presented in the courtroom by the forensic scientist, and how admissibility of evidence is determined in the courtroom.

26) The _____ unit helps prepare photographic exhibits for courtroom presentation.

Answer: photography

Page Ref: 15

Level: Basic

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

27) A forensic _____ can compare bite marks left on a victim to the tooth structure of suspects.

Answer: odontologist

Page Ref: 17

Level: Basic

Objective: Understand what specialized forensic services, aside from the crime laboratory, are generally available to law enforcement personnel.

1.4 Matching

Match the word in the first column to its definition in the second column. Each answer can be used only once.

- A) Visual graphic display of speech
- B) A process that uses strict guidelines to ensure careful and systematic collection, organization, and analysis of information
- C) States that, when two objects come into contact with each other, a cross-transfer of materials occurs
- D) Describes the services of a crime laboratory
- E) A systematic procedure that involves taking a series of body measurements as a means of distinguishing one individual from another
- F) An individual who the court has determined possesses a particular skill in or knowledge of a trade or profession that is not expected of the average layperson and that will aid a court in determining the truth of a matter at trial
- G) Application of science to the laws
- H) Lie detector

1) Expert witness

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Level: Basic

2) Locard's exchange principle

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Level: Basic

3) Scientific method

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Level: Basic

4) Forensic science

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Level: Basic

5) Anthropometry

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Level: Basic

6) Polygraph

Page Ref: 16

Level: Basic

7) Voiceprint

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Level: Basic

8) Criminalistics

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Level: Basic

Answers: 1) F 2) C 3) B 4) G 5) E 6) H 7) A 8) D

1.5 Essay

1) List four major reasons for the increase in the number of crime laboratories in the United States since the 1960s.

Answer:

- The requirement to advise criminal suspects of their constitutional rights and their right of immediate access to counsel has almost eliminated confessions as a routine investigative tool
- The staggering increase in crime rates in the United States
- The fact that all illicit-drug seizures must be sent to a forensic laboratory for confirmatory chemical analysis before the case can be adjudicated in court
- The advent of DNA profiling

Page Ref: 12-14

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

2) List three advantages of having regional crime laboratories that operate as part of a statewide system.

Answer:

- Increases the accessibility of local law enforcement agencies to a crime laboratory
- Minimizes duplication of services
- Ensures maximum interlaboratory cooperation through sharing of expertise and equipment

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Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

3) List the three basic functions of a forensic scientist.

Answer:

- Analyzing physical evidence
- Providing expert testimony
- Furnishing training in the proper recognition, collection, and preservation of physical evidence

Page Ref: 20—25

Level: Basic

Objective: Distinguish between forensic science and criminalistics.

4) Discuss the major outcomes of the trials *Frye v. United States* and *Daubert v. Merrell Dow Pharmaceuticals, Inc.*

Answer: Answer should include points such as the following:

In *Frye v. United States*, the court ruled that, in order for expert testimony to be admitted at trial, a questioned procedure, technique, or principle must be "generally accepted" by a meaningful segment of the relevant scientific community.

In *Daubert v. Merrell Dow Pharmaceuticals*, the U.S. Supreme Court charged the trial judge with ensuring that an expert's testimony rests on a reliable foundation and is relevant to the case.

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Level: Difficult

Objective: Explain how physical evidence is analyzed and presented in the courtroom by the forensic scientist, and how admissibility of evidence is determined in the courtroom.

5) What is the main difference between the testimony given by an expert witness and that given by a lay witness?

Answer: Answer should include points such as the following:

- The ordinary or lay witness must give testimony that does not contain the personal opinions of the witness.
- The expert witness may express his or her personal opinion as to the significance of specific findings.

Page Ref: 24-25

Level: Intermediate

Objective: Explain how physical evidence is analyzed and presented in the courtroom by the forensic scientist, and how admissibility of evidence is determined in the courtroom.

6) Describe the advantages of incorporating an evidence collection unit into the organizational structure of the crime laboratory.

Answer: Answer should include points such as the following:

- Evidence technicians under the continuous direction of the crime laboratory are more likely to have received thorough training in the gathering of evidence at the crime site.
- Evidence technicians who are continually exposed to the problems and techniques of the forensic scientist are better prepared to adopt new procedures or modify existing procedures to improve evidence collection.
- Evidence technicians working out of the forensic laboratory will have at their disposal all the proper tools and supplies for proper collection and packaging of evidence for future scientific examination.

Page Ref: 26-27

Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

1.6 Critical Thinking

1) Describe the evidence to be collected and the specialists or crime laboratory units that would be needed to properly analyze the following crime scene to answer the given questions.

On Monday, September 26, 2011, a small airplane believed to be transporting members of a Mexican drug cartel and a shipment of drugs and firearms of unknown type or size recorded a short "mayday" call at 8:05 a.m. before crashing into a farmhouse in Laredo, Texas. Local police report that homeless individuals frequent the abandoned farmhouse, and there may have been several inside at the time of impact. On impact, the airplane's nearly full gas tank caused a fire that incinerated those within the plane and those within the farmhouse.

The investigators need to deduce the following:

- a. How did the airplane malfunction to cause the crash?
- b. Who was on the airplane and in the farmhouse?
- c. What were the contents of the airplane's cargo?

Answer: Answer should include points such as the following:

- All evidence should be collected by the crime-scene unit or trained personnel.
- a. All available portions of the airplane should be collected and analyzed by a forensic engineer to acquire information about potential causes of the crash. The mayday signal should be recorded and analyzed by the voiceprint analysis unit to acquire information about potential causes of the crash. Samples of gasoline should be collected and analyzed by the physical science unit to to acquire information about potential causes of the crash.
- b. Any discovered remains should be collected and analyzed by a forensic odontologist to acquire information about the victims. Tissue from discovered remains should be collected and analyzed by the biology unit for blood type or DNA to acquire information about the victims.
- c. All available portions of the cargo materials should be collected. Potential drug evidence should be analyzed by the physical science unit, and potential firearms evidence should be analyzed by the firearms unit to acquire information about the contents of the airplane's cargo.

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Level: Intermediate

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

2) For each of the early forensic science methods listed here, state the more recent technology or discipline that has taken its place in forensic science inquiry.

- a. Identification via anthropometry
- b. Firearms bullet and cartridge analysis via unassisted vision
- c. Identification via blood typing
- d. Poison identification via stomach content analysis
- e. Collections and analysis of evidence via untrained police officers

Answer:

- a. Fingerprinting
- b. Comparison microscope
- c. DNA
- d. Toxicology
- e. Crime-scene unit and crime laboratories

Page Ref: 5-7

Level: Basic

Objective: Describe the organization and services of a typical comprehensive crime laboratory in the criminal justice system.

