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Test Bank

Criminalistics: An Introduction to Forensic Science, 12e (Saferstein)
Chapter 1 Introduction

1.1 Multiple Choice Questions

1) Forensic science is the application of science to:

- A) Crime scene reconstruction.
- B) Civil laws.
- C) Criminal laws.
- D) Both criminal and civil laws.

Answer: D

Page Ref: 04

Objective: Distinguish forensic science and criminalistics.

Level: Basic

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

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

Answer: B

Page Ref: 06

Objective: Distinguish forensic science and criminalistics.

Level: Intermediate

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

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

Answer: A

Page Ref: 06

Objective: Distinguish forensic science and criminalistics.

Level: Intermediate

4) Who developed the system known as anthropometry?

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

Answer: A

Page Ref: 06

Objective: Distinguish forensic science and criminalistics.

Level: Intermediate

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

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

Answer: D

Page Ref: 08

Objective: Distinguish forensic science and criminalistics.

Level: Intermediate

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: 08

Objective: Distinguish forensic science and criminalistics.

Level: Intermediate

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

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

Answer: A

Page Ref: 08

Objective: Distinguish forensic science and criminalistics.

Level: Intermediate

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

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

Answer: D

Page Ref: 08

Objective: Distinguish forensic science and criminalistics.

Level: Intermediate

9) Who established the first workable crime laboratory?

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

Answer: C

Page Ref: 08

Objective: Distinguish forensic science and criminalistics.

Level: Intermediate

10) The exchange of evidence principle was theorized by:

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

Answer: B

Page Ref: 09

Objective: Distinguish forensic science and criminalistics.

Level: Basic

11) The oldest forensic laboratory in the United States is that of the:

- A) N.Y.C. Police Department.
- B) FBI.
- C) Los Angeles Police Department.
- D) Secret Service.

Answer: C

Page Ref: 09

Objective: Distinguish forensic science and criminalistics.

Level: Intermediate

12) Which of the following can be rightfully cited as an explanation for the rapid growth of crime labs during the last 40 years?

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

Answer: D

Page Ref: 10

Objective: Distinguish forensic science and criminalistics.

Level: Basic

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

- A) FBI
- B) Royal Canadian Mounted Police
- C) Scotland Yard
- D) ATF

Answer: A

Page Ref: 11

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

Level: Basic

14) Which 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: 13

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

Level: Basic

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

- A) Toxicology unit
- B) Physical science unit
- C) Evidence collection unit
- D) Biology unit

Answer: A

Page Ref: 14

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

Level: Basic

16) The concept of "general acceptance" of scientific evidence relates to the:

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

Answer: C

Page Ref: 17

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.

Level: Intermediate

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

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

Answer: D

Page Ref: 18

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.

Level: Intermediate

18) Which of the following is NOT true? An expert witness must be able to demonstrate:

- A) Skill in trade or profession of interest to the court.
- B) Significant experience in a relevant field.
- C) A formal degree in forensic science.
- D) Education in his/her area of expertise.

Answer: C

Page Ref: 19

Objective: Explain the role and responsibilities of the expert witness.

Level: Intermediate

19) The final evaluator of forensic evidence is the:

- A) Police.
- B) Jury.
- C) Accused.
- D) Prosecutor.

Answer: B

Page Ref: 19

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.

Level: Basic

20) What is the LEAST important consideration in the gathering of evidence at a crime scene?

- A) Adequate preservation of samples
- B) Competent collection of materials
- C) Guilt of the suspect(s)
- D) Proper recognition of the evidence

Answer: C

Page Ref: 21

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.

Level: Intermediate

21) Bite marks would be LEAST likely to be found in cases involving:

- A) Murder.
- B) Child abuse.
- C) Arson.
- D) Sexual abuse.

Answer: C

Page Ref: 23

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

Level: Basic

22) Forensic odontology refers to the study of:

- A) Drugs.
- B) Pollen.
- C) Teeth.
- D) Bones.

Answer: C

Page Ref: 23

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

Level: Basic

23) 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: 05

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

Level: Basic

24) The case of *Coppolino v. State* highlights issues dealing with:

- A) Search and seizure.
- B) The admissibility of the polygraph.
- C) The evidential value of confessions.
- D) The acceptability of new scientific tests.

Answer: D

Page Ref: 20

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.

Level: Intermediate

25) The scientific method requires that scientific evidence be validated by:

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

Answer: D

Page Ref: 17

Objective: Distinguish between forensic science and criminalistics.

Level: Basic

26) 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: 04

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

Level: Intermediate

27) The tendency of the public to believe that every crime scene will yield forensic evidence and their unrealistic expectations that a prosecutor's case should always be bolstered and supported by forensic evidence is known as:

- A) Jurisprudence.
- B) Locard's Principle.
- C) The Scientific Method.
- D) The CSI Effect.

Answer: D

Page Ref: 05

Objective: Distinguish between forensic science and criminalistics.

Level: Intermediate

28) 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: 11

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

Level: Intermediate

29) 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: 12

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

Level: Intermediate

30) Which specialized area of forensic science examines the relationship between human behavior and legal proceedings?

- A) Forensic jury selection
- B) Jurisprudence
- C) Forensic psychiatry
- D) Forensic psychology

Answer: C

Page Ref: 22

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

Level: Intermediate

31) A crime scene which involved the collapse of a structure would be analyzed by specialists in the area of:

- A) Forensic computer and digital analysis.
- B) Forensic error analysis.
- C) Criminalistics.
- D) Forensic engineering.

Answer: D

Page Ref: 23

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

Level: Intermediate

32) What factor(s) do(es) the court usually take into consideration as sufficient grounds for qualification as an expert witness?

- A) Experience
- B) Training
- C) Education
- D) All of the above

Answer: D

Page Ref: 19

Objective: Explain the role and responsibilities of the expert witness.

Level: Intermediate

33) 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: 21

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

Level: Intermediate

34) In *Kumho Tire Co., Ltd. v. Carmichael*, the U.S. 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: 18

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.

Level: Intermediate

35) The judicial case that set forth the most current guidelines for determining the admissibility of scientific examinations in the federal courts is:

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

Answer: B

Page Ref: 18

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.

Level: Intermediate

36) The dramatization of forensic science on television has led to a phenomenon known as the:

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

Answer: C

Page Ref: 05

Objective: Explain the role and responsibilities of the expert witness.

Level: Basic

37) The necessity for the forensic scientist to appear in court comes from the U.S. Supreme Court case:

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

Answer: A

Page Ref: 20

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.

Level: Basic

38) 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: 11

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

Level: Intermediate

39) The lay witness provides testimony that relies on:

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

Answer: C

Page Ref: 20

Objective: Explain the role and responsibilities of the expert witness.

Level: Intermediate

1.2 True/False Questions

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

Answer: FALSE

Page Ref: 08

Objective: Distinguish between forensic science and criminalistics.

Level: Intermediate

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

Answer: TRUE

Page Ref: 17

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

Level: Intermediate

3) A polygraph examination does not normally lie within the expertise of the forensic scientist.

Answer: TRUE

Page Ref: 14

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

Level: Intermediate

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

Answer: FALSE

Page Ref: 19

Objective: Distinguish between forensic science and criminalistics.

Level: Basic

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

Answer: FALSE

Page Ref: 04

Objective: Distinguish between forensic science and criminalistics.

Level: Basic

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

Answer: TRUE

Page Ref: 09

Objective: Distinguish between forensic science and criminalistics.

Level: Basic

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

Answer: FALSE

Page Ref: 09

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

Level: Intermediate

8) The increase in U.S. crime rates since the 1960s did not have any effect on the growth of crime laboratories.

Answer: FALSE

Page Ref: 10

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

Level: Basic

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

Answer: TRUE

Page Ref: 11

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

Level: Intermediate

10) Differences in local laws have no effect on the variation of total services offered by crime labs in different communities.

Answer: FALSE

Page Ref: 12

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

Level: Basic

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

Answer: TRUE

Page Ref: 13

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

Level: Intermediate

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

Answer: TRUE

Page Ref: 13

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

Level: Intermediate

13) Examining garments and other objects in order to detect firearms discharge residues would be performed in the biology unit.

Answer: FALSE

Page Ref: 13

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

Level: Intermediate

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

Answer: FALSE

Page Ref: 15

Objective: Explain the role and responsibilities of the expert witness.

Level: Basic

15) *Frye v. United States* established the "general acceptance" rule.

Answer: TRUE

Page Ref: 17

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.

Level: Intermediate

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

Answer: FALSE

Page Ref: 20

Objective: Explain the role and responsibilities of the expert witness.

Level: Intermediate

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

Answer: TRUE

Page Ref: 20

Objective: Explain the role and responsibilities of the expert witness.

Level: Intermediate

18) 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: 23

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

Level: Intermediate

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

Answer: FALSE

Page Ref: 13

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

Level: Intermediate

20) The toxicology unit determines the alcoholic consumption of individuals.

Answer: TRUE

Page Ref: 14

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

Level: Intermediate

21) Karl Landsteiner and Louis Lattes are associated with the area of blood typing.

Answer: TRUE

Page Ref: 08

Objective: Distinguish between forensic science and criminalistics.

Level: Basic

22) Dr. Walter C. McCrone made significant contributions to forensic science using the microscope.

Answer: TRUE

Page Ref: 08

Objective: Distinguish between forensic science and criminalistics.

Level: Basic

23) The increase in crime rates in the U.S. has led to an increase in the number of crime laboratories.

Answer: TRUE

Page Ref: 10

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

Level: Intermediate

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

Answer: TRUE

Page Ref: 10

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

Level: Intermediate

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

Answer: FALSE

Page Ref: 19

Objective: Distinguish between forensic science and criminalistics.

Level: Intermediate

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

Answer: FALSE

Page Ref: 11

Objective: Distinguish between forensic science and criminalistics.

Level: Intermediate

27) Forensic odontologists look at bones to identify victims.

Answer: FALSE

Page Ref: 23

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

Level: Intermediate

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

Answer: TRUE

Page Ref: 04

Objective: Distinguish between forensic science and criminalistics.

Level: Intermediate

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

Answer: TRUE

Page Ref: 06

Objective: Distinguish between forensic science and criminalistics.

Level: Basic

30) The United States has no national system of forensic laboratories.

Answer: TRUE

Page Ref: 11

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

Level: Intermediate

31) The firearms unit may also analyze tool marks.

Answer: TRUE

Page Ref: 13

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

Level: Basic

32) Physical evidence is subject to bias.

Answer: FALSE

Page Ref: 15

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

Level: Basic

33) The current system of laboratories in the U.S. is decentralized.

Answer: TRUE

Page Ref: 11

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

Level: Intermediate

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

Answer: TRUE

Page Ref: 11

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

Level: Intermediate

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

Answer: FALSE

Page Ref: 12

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

Level: Intermediate

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

Answer: FALSE

Page Ref: 14

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

Level: Intermediate

37) The five basic services a crime lab can provide are the physical science unit, the biology unit, the firearms unit, the document examination unit, and the photography unit.

Answer: TRUE

Page Ref: 12-13

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

Level: Intermediate

1.3 Fill in the Blank Questions

1) The "father of forensic toxicology" is considered to be _____.

Answer: Orfila

Page Ref: 06

Objective: Distinguish between forensic science and criminalistics.

Level: Intermediate

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

Answer: Galton

Page Ref: 08

Objective: Distinguish between forensic science and criminalistics.

Level: Intermediate

3) _____ 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: 08

Objective: Distinguish between forensic science and criminalistics.

Level: Difficult

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

Answer: Private

Page Ref: 10

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

Level: Difficult

5) The _____ unit performs DNA profiling of dried bloodstains and other body fluid.

Answer: Biology

Page Ref: 13

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

Level: Basic

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

Answer: Toxicology

Page Ref: 14

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

Level: Basic

7) The _____ 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: CSI

Page Ref: 14

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

Level: Intermediate

8) The _____ case 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: 18-19

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.

Level: Difficult

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

Answer: Expert

Page Ref: 19

Objective: Explain the role and responsibilities of the expert witness.

Level: Intermediate

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

Answer: Lay

Page Ref: 20

Objective: Explain the role and responsibilities of the expert witness.

Level: Intermediate

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

Answer: Odontologist

Page Ref: 23

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

Level: Basic

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

Answer: Photography

Page Ref: 13

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

Level: Basic

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

Answer: Law

Page Ref: 04

Objective: Distinguish between forensic science and criminalistics.

Level: Basic

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

Answer: Anthropometry

Page Ref: 08

Objective: Distinguish between forensic science and criminalistics.

Level: Intermediate

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

Answer: Voiceprint

Page Ref: 14

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

Level: Basic

16) Collecting evidence from a cell phone is an example of Forensic _____ and Digital Analysis.

Answer: Computer

Page Ref: 23-24

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

Level: Intermediate

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

Answer: Typewriting

Page Ref: 13

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

Level: Basic

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

Answer: Truth

Page Ref: 20

Objective: Distinguish between forensic science and criminalistics.

Level: Difficult

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

Answer: Internet

Page Ref: 24

Objective: Distinguish between forensic science and criminalistics.

Level: Intermediate

20) _____ 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: 08

Objective: Distinguish between forensic science and criminalistics.

Level: Difficult

1.4 Matching Questions

Match the word in Column 1 to its definition in Column 2. Each answer can only be used once.

- A) When two objects come into contact with each other, a cross-transfer of materials occurs
- B) Application of science to the laws
- C) A process that uses strict guidelines to ensure careful and systematic collection, organization, and analysis of information
- D) An individual whom the court determines to possess a particular skill or knowledge in 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
- E) Public belief that every crime scene will yield forensic evidence
- F) A systematic procedure that involved taking a series of body measurements as a means of distinguishing one individual from another
- G) Lie detector
- H) Describes the services of a crime laboratory
- I) Visual graphic display of speech
- J) Specialized area in which the relationship between human behavior and legal proceedings is examined

1) Expert witness

Page Ref: 4-24

Level: Basic

2) Locard's Exchange Principle

Page Ref: 4-24

Level: Basic

3) Scientific Method

Page Ref: 4-24

Level: Basic

4) Forensic science

Page Ref: 4-24

Level: Basic

5) Anthropometry

Page Ref: 4-24

Level: Basic

6) Voiceprint

Page Ref: 4-24

Level: Basic

7) Polygraph

Page Ref: 4-24

Level: Basic

8) Criminalistics

Page Ref: 4-24

Level: Basic

9) CSI Effect

Page Ref: 4-24

Level: Basic

10) Forensic psychiatry

Page Ref: 4-24

Level: Basic

Answers: 1) D 2) A 3) C 4) B 5) F 6) G 7) I 8) H 9) E 10) J

1.5 Essay Questions

1) List the underlying reasons for the rapid growth of crime laboratories in the United States since the late 1960s.

Answer:

1) The increasing volume of physical evidence recovered from crime scenes as a result of rising crime rates

2) The need to perform chemical analyses on drugs, coupled with a significant increase in illicit drug seizures

3) Supreme Court decisions have enhanced the rights of the defendant. Decisions, such as those ensuring a defendant's right to counsel and the right to remain silent, have encouraged police agencies to place a greater reliance on scientific investigative techniques.

4) A more recent impetus leading to the growth and maturation of crime laboratories has been the advent of DNA profiling. Since the early 1990s, this technology has progressed to the point at which traces of blood, semen, stains, hair, and saliva residues left behind on stamps, cups, bite marks, and so on, have made possible the individualization or near-individualization of biological evidence. To meet the demands of DNA technology, crime labs have expanded staff in many cases modernized their physical plants.

5) Advances in scientific technology have provided forensic scientists with many new skills and techniques to extract meaningful information from physical evidence.

Page Ref: 10-11

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

Level: Intermediate

2) List the advantages of incorporating an evidence collection unit into the organizational structure of the crime laboratory.

Answer: Answer (should include points such as):

- 1) 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.
- 2) Evidence technicians who are continuously 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.
- 3) 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: 21

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.

Level: Intermediate

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

Answer:

- 1) Provides analysis of physical evidence
- 2) Provides expert testimony
- 3) Furnishes training in recognizing, collecting, and preserving physical evidence at crime scenes

Page Ref: 15-22

Objective: Distinguish between forensic science and criminalistics.

Level: Basic

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

Answer: Answer (should include points such as):

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.

Page Ref: 17-19

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.

Level: Difficult

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

Answer: **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.

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Objective: Explain the role and responsibilities of the expert witness.

Level: Intermediate

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

Answer: 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 continuously 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: 21-22

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

Level: Intermediate

1.6 Critical Thinking Questions

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 and 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, TX. Local police report that the abandoned farmhouse is frequented by homeless individuals, and there may have been several inside at the time of impact. Upon 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 the airplane malfunctioned to cause the crash
- b. Who was on the airplane and in the farmhouse
- c. The contents of the airplane's cargo

Answer: Answer (should include points such as):

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 potential of victims. Tissue from discovered remains should be collected and analyzed by the biology unit for blood type or DNA to acquire information about the potential of victims.
- c. All available portions of the cargo materials should be collected. Potential drug evidence should be analyzed by the physical science unit to acquire information about the contents of the airplane's cargo. Potential firearms evidence should be analyzed by the firearms unit to acquire information about the contents of the airplane's cargo.

Page Ref: 4-24

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

Level: Intermediate

2) For each of the early forensic science methods listed below, denote the more recent technology or discipline which has taken its place for use 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: 4-24

Objective: Distinguish between forensic science and criminalistics.

Level: Basic

3) Explain the reasons why it is important to consider the relevance of scientific evidence before allowing it to be introduced into a criminal case.

Answer: Answer (should include points such as):

It is important to consider the relevance of scientific evidence before allowing it to be introduced into a criminal case because physical evidence is accorded great weight during jury deliberations. In addition, failure to take proper safeguards when determining the relevance of evidence may unfairly prejudice a case against the accused. This is in direct conflict with the prosecution's need to be objective and present information in an objective manner at trial.

Page Ref: 4-24

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.

Level: Basic

