CIF: Study Guide

Multiple Choice:

1. What would be considered the job of a forensic scientist?
   a. to provide expert testimony
   b. to train or oversee others in collecting evidence at a crime scene
   c. to examine evidence found at a crime scene
   d. all of the above

2. Which of the following governmental agencies maintain their own crime lab?
   a. DEA
   b. FBI
   c. ATF
   d. all of the above

3. Evidence is
   a. anything found at a crime scene
   b. anything that tends to establish or disprove a fact
   c. anything that is admissible in court
   d. something that can only be determined by the arresting officer

4. The earliest known use of blood spatter evidence occurred in the:
   a. 1100's
   b. 1500's
   c. 1850's
   d. 1900's

5. The court case of *Daubert vs Merrell Dow*, changed the standard of admission of scientific evidence. The case occurred in the:
   a. 1920's
   b. 1950's
   c. 1970's
   d. 1990's

6. The FBI crime laboratory was created in the:
   a. 1920's
   b. 1930's
   c. 1940's
   d. 1950's

7. Forensic scientists may examine evidence dealing with:
   a. criminal cases
   b. civil cases
   c. both civil and criminal cases
   d. neither

8. The term that means that previous legal decisions are to be followed is:
   a. stare decisis
   b. corpus delecti
   c. nolo contendere
   d. pro bono

9. Evidence is admissible if it:
   a. addresses an issue
   b. is relevant
   c. is reliable
   d. all of the above

Do NOT write on this test – Use your answer sheet!

10. A person is determined to be an expert by whom:
    a. a judge
    b. the prosecutor
    c. a defense attorney
    d. the person him or herself

11. The case that decided that evidence allowed in court depends on what is "generally accepted" by the relevant scientific community was:
    a. *Frye v United States*
    b. *Frye v Daubert*
    c. *Dow v State of Michigan*
    d. *Daubert v Dow*

12. Which of the following is NOT true concerning the Daubert Ruling
    a. it applies only to state courts
    b. a theory must be testable
    c. the rate of error must be given for evidence admissibility
    d. a theory must be subject to peer review

13. Which crime unit would analyze blood stains?
    a. physical science
    b. biology
    c. firearms
    d. document examination

14. Which crime unit would analyze soil?
    a. physical science
    b. biology
    c. document examination
    d. firearms

15. The effectiveness of an expert's testimony is almost always dependent on:
    a. the experience of the expert
    b. the educational background of the expert
    c. the ability of the expert to talk in clear, concise language
    d. all of the above

16. The first crime lab was established in:
    a. the United States
    b. England
    c. France
    d. Germany

17. Which of the following is NOT admissible in a court of law?
    a. lie detectors
    b. DNA
    c. fingerprints
    d. hair

18. Under Daubert who determines evidentiary admissibility:
    a. the expert witness
    b. the judge
    c. the jury
    d. a panel of stakeholders

Do NOT write on this test – Use your answer sheet!

19. Who is the only courtroom actor who may testify to their opinion?
    a. Forensic scientist
    b. Police officers
    c. Eyewitnesses
    d. Only those who have established their expertise in court

20. The forensic scientist has a primary responsibility when interacting with both prosecuting and defense attorneys to:
    a. make sure the defendant is found guilty
    b. represent the state's case
    c. present the facts of the case and render their opinion when requested
    d. to make sure all witnesses testify

Matching:

a. Toxicology	d. Engineering
b. Pathology	e. Anthropology
c. Entomology	f. Odontology

Analyze the evidence below and select which forensic scientist from above would best process the evidence:

21. Bones
22. Bugs
23. Fatality car crash
24. Cause of death when unknown
25. Airplane crash with 174 badly burned corpses needing identification

Short Answer/Essay:

1. State the Locard Principal. What is it's significance to forensic science?

2. What are the federal Rules of Evidence, and why are they important?

3. Explain how the Daubert ruling advanced the standard by which evidence was admissible from Frye. Be sure to list the five determining factors a judge uses to establish admissibility.

4. Describe the CSI Effect. Evaluate an episode and describe how a part of the show might cause problems in a real criminal trial.

5. Use a Venn Diagram to illustrate the interaction of forensic scientist, police, and prosecutors.

Multiple Choice:

1. The reliability of eye witness accounts can be affected by:

a. the type of crime
b. the interviewing technique used by the investigator
c. the time between the crime and the interview
d. all of the above

2. Which is the following is NOT considered physical evidence?
   a. fiber
   b. testimony
   c. toolmarks
   d. soil

3. If evidence has class characteristics, it
   a. can link a suspect to a crime with certainty
   b. has more probative value than direct evidence
   c. can exonerate innocent suspects

4. A term that means supplying proof or evidence is:
   a. material
   b. direct
   c. probative
   d. *prima facie*

5. Known or control sample could come from:
   a. the crime scene
   b. a known suspect
   c. the victim
   d. all of the above

6. Which of the following is NOT true about the value of physical evidence
   a. it can prove that a crime has been committed
   b. it is always individual evidence
   c. it can link a suspect with a victim or crime scene
   d. it can allow investigators to reconstruct a crime
   e. b and d are not true
   f. none of these are true

7. If a forensic scientist can piece together broken pieces of glass from a bottle that was used as a weapon, it has:
   a. individual characteristics
   b. class characteristics
   c. identification characteristics
   d. comparative characteristics

8. Which of the following would be considered individual evidence?
   a. DNA
   b. soil
   c. paint
   d. blood type

9. Which of the following would have the most probative value?
   a. soil
   b. glass
   c. fingerprint
   d. fiber

10. If evidence has individual characteristics, it
    a. can link a suspect to a crime with certainty
    b. has probative value
    c. can exonerate innocent suspects
    d. all of the above

Do NOT write on this test – Use your answer sheet!

11. Microscopic examination of hair can determine:
    a. whether or not the hair is human or animal
    b. the age of the person
    c. the gender of the person
    d. all of these
    e. none of these

12. Generally, a human hair can be distinguished from an animal hair by examining:
    a. the cortex
    b. the medulla
    c. the color
    d. the texture

13. The racial origin of a hair can be determined:
    a. always
    b. sometimes
    c. never
    d. only if it doesn't have a root

14. Human hair can be characterized by having a medulla that is:
    a. less than 1/3 of the hair diameter
    b. absent of a scale pattern
    c. greater than 1/2 of the hair diameter
    d. that is colorless

15. Nuclear DNA can be identified from:
    a. the hair shaft
    b. the hair root or follicle
    c. both
    d. neither

16. An unidentified hair is examined and found to have been dyed. The dye begins 3 cm from the root. This indicates that it was dyed:
    a. one month ago
    b. two months ago
    c. three months ago
    d. not possible to determine

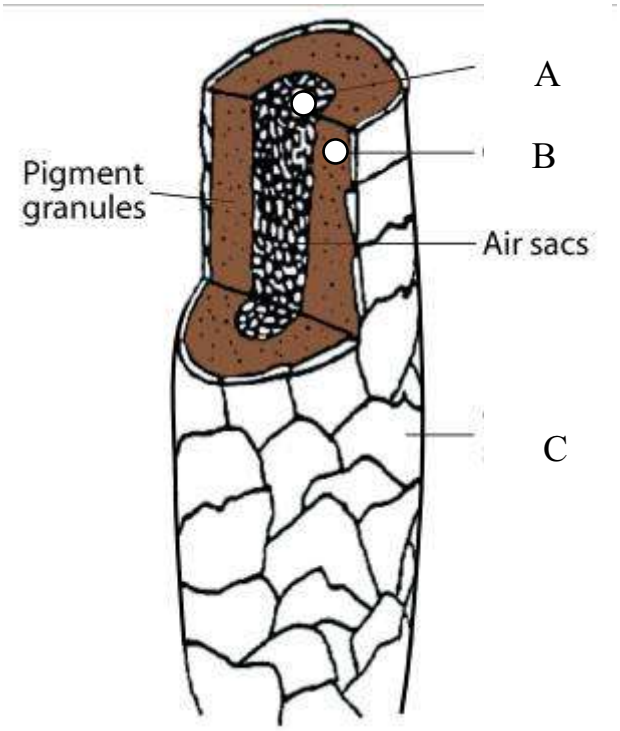
17. In a cross section, the hair of an African American would look:
    a. round
    b. oval
    c. crescent moon
    d. none of these

18. This medulla pattern would be considered:

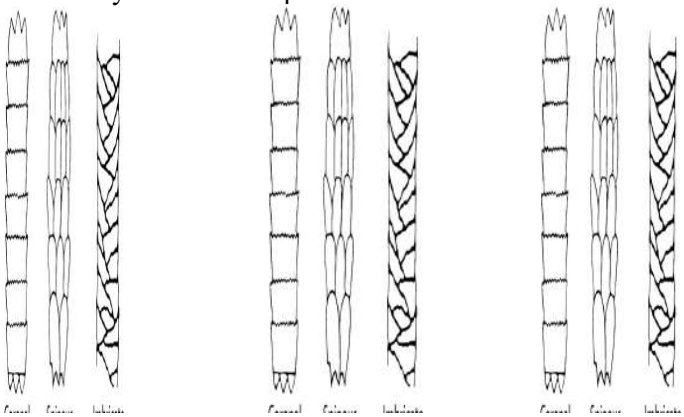
    a. fragmented
    b. interrupted
    c. continuous
    d. stacked

Do NOT write on this test – Use your answer sheet!

19. Mark on your sheet letter that indicates the cortex:



20. Mark on your sheet the pattern that would be imbricate:



A B C

21. Some examples of natural fibers are:
    a. jute, rayon, silk and wool
    b. wool, cotton, cashmere
    c. linen, cotton, acetate, rayon
    d. linen, cotton, wool, Dacron

22. Fibers that are polymers are:
    a. natural
    b. synthetic
    c. all fibers are polymers
    d. no fibers are polymers

Do NOT write on this test – Use your answer sheet!

23. To test the dye in a particular fiber, it can be extracted and then tested using:
    a. a burn test
    b. a thermal decomposition test
    c. chemical tests
    d. any of these

24. Out of seven analytical tests performed to match a questioned fiber to a known, you find one discrepancy. The cross-section is triangular rather than round. What do you do?
    a. don't worry about it; six out of seven is good evidence
    b. report that there is no association between the questioned fiber and the known
    c. assume that the one test was wrong

25. Which of the following will fluoresce under ultraviolet light?
    a. polyester
    b. cotton
    c. nylon
    d. acrylic

26. Who was the person convicted on the basis of fiber evidence?
    a. Ronald Cotton
    b. Amanda Davies
    c. Wayne Williams
    d. Richard Vorder Bruegge

27. Which of the following properties should be examined when comparing two fibers?
    a. birefringence
    b. diameter
    c. color
    d. all of these

28. Which of the following fibers DO NOT come from an animal source?:
    a. asbestos
    b. mohair
    c. silk
    d. wool
    e. cashmere
    f. all of these come from animals

29. Fibers that are made by plants or animals are called:
    a. natural
    b. plain
    c. synthetic
    d. real

30. Wool, when burned, smells like:
    a. tar
    b. burning hair
    c. vinegar
    d. diesel fuel

31. Trace evidence found at a crime scene may include:
    a. sand, soil
    b. any physical evidence found in small amounts
    c. powders, explosive residue, metal or glass particles
    d. all of the above

32. Determining the density of a metal by observing whether it sinks or floats in bromoform is a:
    a. chemical test
    b. physical test
    c. both a and b
    d. neither a or b

33. To examine the chemical properties of metal add _____ and look for a color change or the evolution of bubbles.
    a. an acid and/or base
    b. water and heat
    c. a magnet
    d. any of these would work

Do NOT write on this test – Use your answer sheet!

34. Common metals that are magnetic are:
    a. iron, nickel, and copper
    b. nickel, copper, and chromium
    c. chromium, zinc, and iron
    d. iron and nickel

35. When using chromatographic techniques, it is important to keep the sample spot above the solvent level because:
    a. the spot will travel up the stationary phase and be deposited on the strip
    b. the spot will mix with the solvent and travel faster than it is supposed to
    c. the spot will dissolve in the solvent and not go anywhere
    d. all of these could happen

36. One of the tests used to classify white powders is based on solubility. The solubility of a substance is based on:
    a. its ability to turn brown with the addition of iodine
    b. the evolution of gas when an acid is added
    c. its ability to turn bright pink when phenolphthalein is added
    d. its ability to dissolve when a solvent such as water is added

37. The solubility of a substance is considered:
    a. a physical property
    b. a chemical property
    c. both a and b
    d. neither a or b

38. When one substance is added to another, the evolution of gas bubbles indicates:
    a. a physical change
    b. a chemical change
    c. both a and b
    d. neither a or b

39. The pH of a substance indicates whether it is acidic or basic. Acids have a pH of:
    a. less than 7
    b. 7
    c. greater than 7
    d. it depends on the substance that is added

40. Which of these indicates that a chemical reaction has taken place?
    a. color changes
    b. gas bubbles
    c. formation of a precipitate
    d. all of these

41. The forensic definition of soil is:
    a. a mixture of mineral grains and decayed organic matter
    b. a mixture of mineral grains, organic matter, and any other materials mixed with the sample
    c. decayed organic matter only
    d. anything that looks like dirt

42. Soil evidence is analyzed based on its:
    a. physical properties
    b. chemical properties
    c. settling rate
    d. all of the above

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43. A topographic map is one that shows:
    a. the same as a roadmap with all major and minor roads
    b. geographic features of an area
    c. the soil composition of an area
    d. all of the above
    e. none of the above

44. A soil horizon is something that shows
    a. the relative density of soil particles
    b. the pH of soil
    c. the rate of settling
    d. a soil profile showing distinct layers

45. The organic part of soil is called:
    a. humus
    b. minerals
    c. rock particles
    d. loam

46. The amounts of light transmitted through a sample can be measured as a function of wavelength through which procedure?
    a. chromatography
    b. spectroscopy
    c. electrophoresis
    d. none of these

47. Glass evidence is considered:
    a. individual evidence
    b. class evidence
    c. sometimes individual, sometimes class depending on the circumstances

48. A glass fragment is dropped into a test tube filled with a particular liquid. If the fragment floats on the surface, the density of the glass is _____ the density of the liquid.
    a. more than
    b. less than
    c. equal to
    d. it could be any of the above

49. A glass fragment is dropped into a test tube filled with a particular liquid. If the fragment is suspended in the middle of the liquid, the density of the fragment is _____ the density of the liquid.
    a. more than
    b. less than
    c. equal to
    d. it could be any of the above

50. Another term for a known source would be:
    a. a questioned
    b. an exemplar
    c. a verification
    d. none of these

51. A piece of glass has a bullet hole that is larger on one side of the glass than on the other. This indicates:
    a. a high powered shot gun made the hole
    b. the larger side is the entrance
    c. the larger side is the exit
    d. the bullet was traveling at low velocity

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52. In examining a glass fracture pattern, the radial lines are:
    a. cracks that form in circles around the point of impact
    b. cracks that extend out from the point of impact
    c. directional lines that seem to go nowhere
    d. cracks known as Becke lines

53. A man claims that someone broke into his house through the window; the investigator believes that the window was broken from the inside of the house. What evidence would lead the investigator to believe this?
    a. the window had concentric lines in the fracture pattern
    b. the window had radial lines in the fracture pattern
    c. the edge of the window had stress makes perpendicular to the outside and parallel to the inside
    d. there were no visible cracks at all

54. If two fracture lines meet, it is easy to determine which fracture occurred first because:
    a. the fracture line will terminate at the crack that happened first
    b. the fracture line will terminate at the crack that happened second
    c. the second fracture will not have concentric cracks
    d. the second fracture will not have radial cracks

55. It is useful to find the Becke line when examining:
    a. radial cracks
    b. concentric cracks
    c. refractive index
    d. density

Matching:

Match the following terms with the statements below.

a. Becke line
b. blend
c. chromatography
d. filament
e viscosity
f. density

56. a method of separating components of mixtures
57. a halo-like shadow around an object immersed in a liquid of a different refractive index
58. mass divided by volume
59. the resistance of a fluid to flow
60. fabric made up of two or more different types of fiber

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