

Forensics Final

Multiple Choice

Identify the letter of the choice that best completes the statement or answers the question.

1. All of the following items may be placed in an airtight container except:
 - a. Charred fire debris
 - b. bloodstained clothing
 - c. glass
 - d. hairs or fibers
 - e. explosive residue
2. The following service does not normally lie within the expertise of the forensic scientist:
 - a. drug identification
 - b. wood comparisons
 - c. polygraph examination
 - d. latent fingerprint examination
 - e. document examination
3. The computerized database used to store DNA information is:
 - a. AFIS
 - b. CODIS
 - c. IBIS
 - d. Drugfire
 - e. PDQ
4. If glass cannot be physically pieced together then the control and question glass are best compared as to their:
 - a. Color and density
 - b. mass and density
 - c. refractive index and density
 - d. refractive index and mass
 - e. refractive index and color
5. The fingerprint pattern accounting for only 5% of all known patterns is the:
 - a. Arch
 - b. Radial
 - c. Ulnar Loop
 - d. Whorl
 - e. None of the above
6. The relative evidential value of laboratory test results is almost always dependent on:
 - a. The importance of the case
 - b. The quantity of evidence submitted
 - c. The way the evidence is collected and presented for examination
 - d. The crime laboratory's caseload
 - e. None of the above
7. Which of the following statements is correct?
 - a. All atoms of an element have the same atomic mass number
 - b. All atoms of an element have the same number of protons
 - c. All atoms of an element have the same number of neutrons
 - d. The number of protons in the nucleus of an atom is called the atomic mass number
 - e. All atoms of an element have an equal number of neutrons and electrons
8. One of the earliest crime laboratories was founded by
 - a. Albert Osborn
 - b. Hans Gross
 - c. Edmond Locard
 - d. Leone Laties
 - e. Francis Galton
9. A neutral substance has a pH closest to:
 - a. 0
 - b. 2
 - c. 5
 - d. 7
 - e. 9

10. Which of the following is NOT a ridge characteristic of a fingerprint?
 - a. Enclosure
 - b. Bifurcation
 - c. island
 - d. Ridge ending
 - e. All of the above
11. Which of the following is the proper SI unit for mass?
 - a. lb
 - b. L
 - c. mg
 - d. g
 - e. cm
12. The two most important physical properties of glass for forensic comparisons are:
 - a. color and density
 - b. mass and density
 - c. refractive index and density
 - d. refractive index and mass
 - e. refractive index and color
13. The manner of collecting and preserving physical evidence at a crime scene is determined by:
 - a. The circumstances of the crime
 - b. The importance of the case
 - c. The number of evidence collectors present at the crime scene
 - d. The nature of the evidence
 - e. The availability of suitable packaging material
14. Physical evidence may be obtained from:
 - a. The crime scene
 - b. The victim
 - c. The suspect
 - d. All of the above
 - e. None of the above
15. The fracture pattern of glass usually has:
 - a. Radial lines
 - b. Concentric lines
 - c. Radial and concentric lines
 - d. Directional lines
 - e. None of the above
16. The magnification power of a microscope equals the magnifying power of:
 - a. The eyepiece lens
 - b. The objective lens
 - c. The objective lens multiplied by the eyepiece lens
 - d. them eyepiece lens times two
 - e. The objective lens multiplied by the eyepiece lens
17. The first system of individual classification and identification was introduced by:
 - a. Francis Galton
 - b. William Herschel
 - c. Richard Henry
 - d. Alphonse Bertillon
 - e. None of the above
18. The obligation to maintain the integrity of evidence belongs to which of the following?
 - a. The first police officer at the scene
 - b. The forensic scientist
 - c. The prosecutor
 - d. The evidence clerk
 - e. All of the above
19. A piece of glass is immersed in a liquid. It proceeds to float on the liquid's surface. This shows that the density of the glass is _____ the density of the liquid.
 - a. more than
 - b. less than
 - c. equal to
 - d. none of the above
 - e. equal to
20. Hair can best be characterized as originating from an animal by examining:
 - a. The medulla
 - b. The cuticle
 - c. Both the medulla and cuticle
 - d. Its color
 - e. Its scale structure

Name: _____

ID: A

21. Which statement is true?
- a. The racial origin of hair can always be identified.
 - b. Hair can be individualized through its trace elemental composition.
 - c. Hair is routinely examined to determine sex.
 - d. Through a microscopic examination a single hair can be individualized to one person.
 - e. Two hairs from the same head may not have the same morphological characteristics.
22. The 'jigsaw fit' of known and questioned fragments is important for court presentation primarily because:
- a. It is a quick way of demonstrating how the object broke.
 - b. Courts and juries are too nonscientific to understand it any other way.
 - c. Instrumental analysis is too complicated to explain to nontechnical juries.
 - d. This method will definitely demonstrate common origin when a match is made.
 - e. Instrumental analysis of the fragments will not be sufficiently specific for comparison purposes.
23. The basic metric unit of volume is the:
- a. Ounce
 - b. Meter
 - c. Liter
 - d. Cubic centimeter
 - e. Milliliter
24. Which of the following is an element?
- a. Wood
 - b. Water
 - c. Aluminum
 - d. Air
 - e. Fire
25. The portion of the hair containing its scales is:
- a. The cortex
 - b. The cuticle
 - c. The medulla
 - d. The root
 - e. The follicle
26. Density is defined as:
- a. volume per unit weight
 - b. Weight per unit volume
 - c. mass per unit volume
 - d. mass per unit mass
 - e. none of the above
27. The judicial case that set forth the current guidelines for determining the admissibility of scientific examinations in the federal courts is:
- a. Frye v. US
 - b. Daubert v. Merrill Dow Pharmaceuticals
 - c. Coppelino v. State of Florida
 - d. Mapp v. US
 - e. People v. Williams
28. How many mm are in a cm?
- a. 100
 - b. 10
 - c. 0.01
 - d. 1000

Name: _____

ID: A

29. Which of the following is FALSE?
- a. The basic building blocks of all substances are elements.
 - b. Elements are composed of atoms.
 - c. Two or more elements combine to form compounds.
 - d. Compounds are composed of molecules.
 - e. Most things are only made up of 3 elements.
30. A technique frequently used to compare soils is:
- a. The immersion method
 - b. Density-gradient tubes
 - c. Floitation
 - d. Becke Line
 - e. Dispersion
31. Rayon is classified as a:
- a. Natural fiber
 - b. Synthetic fiber
 - c. Plant fiber
 - d. Regenerated fiber
 - e. Animal fiber
32. Which of the following is NOT a physical property of a substance?
- a. Boiling point
 - b. Color
 - c. Melting point
 - d. Weight
 - e. The pH
33. The polymeric makeup of paint binders can readily be compared by:
- a. Emission spectroscopy
 - b. Thin-layer chromatography
 - c. Microscopy
 - d. Layer structure
 - e. Pyrolysis gas chromatography
34. A comparison analysis subjects a suspect specimen and a control specimen to the same tests and examinations for the ultimate purpose of determining:
- a. Whether or not they have a common origin
 - b. If they are identical in chemical composition
 - c. If the same person handled them
 - d. If they are alike in molecular structure
 - e. All of the above
35. The evidence collector is not concerned with:
- a. Maintaining the chain of custody
 - b. Utilizing the proper packaging material for evidence
 - c. Labeling evidence
 - d. Collecting control specimens
 - e. Determining the natural variations that exist in physical evidence
36. Evidence having 'class characteristics' can:
- a. Exonerate an innocent suspect
 - b. Link a person to a crime with a high degree of certainty
 - c. Always be fitted together in the manner of a jigsaw puzzle
 - d. Have no evidential value
 - e. None of the above

Name: _____

ID: A

37. Which of the following statements is FALSE?
- The scanning electron microscope (SEM) produces an image by aiming a beam of electrons onto a specimen
 - The major attraction of the SEM is its high magnification and depth of field
 - The SEM produces an image that is stereoscopic in appearance
 - A SEM can be fitted with an analyzer capable of identifying the elements present in the specimen under examination.
 - Microwaves are generated when the electron beam of the SEM strikes a target
38. The physical state that has both shape and volume is a:
- Solid
 - Vapor
 - Liquid
 - Gas
 - All of the above
39. A fingerprint having no delta is a(n)?
- Ulnar loop
 - Whorl
 - Accidental
 - Arch
 - none of the above
40. Protein residues are best developed into fingerprint impressions with:
- Iodine
 - Ninhydrin
 - Physical developer
 - Dusting powder
 - All of the above
41. The cortex of hair derives its major forensic importance from the fact that it contains:
- Scales
 - Pigments
 - Medullae
 - DNA
 - None of the above
42. The effectiveness of an expert's testimony is almost always dependent on:
- The experience of the expert
 - The ability of the expert to talk in clear, concise language
 - The educational background of the expert
 - The scientific validity of the tests used
 - all of the above
43. Physical evidence that can be used to aid in a crime scene reconstruction includes:
- Blood spatters
 - Gunshot residues
 - Glass Fragments
 - Shoepprints
 - All of the above
44. Stress marks on the edge of a radial crack near the point of impact are:
- Perpendicular to the side on which the force was applied
 - Parallel to the side on which the force was applied
 - Parallel to the side opposite the side on which the force was applied
 - None of the above
45. One inch is equivalent to how many centimeters?
- 100
 - 10
 - 0.01
 - 453.6
 - 2.54

Name: _____

ID: A

46. If the laboratory can piece broken glass from a window or headlight together, then the evidence has _____ characteristics.
- Identification
 - Comparative
 - Individual
 - Class
 - None of the above
47. Which of the following types of fingerprints are more likely to be found impressed in soft wax?
- Visible
 - Plastic
 - Latent
 - Hidden
 - None of the above
48. The case of Frye v. United States deals with the legal issue of:
- Admissibility of photographs in court
 - General acceptance of scientific principles
 - Admissibility of fingerprint evidence
 - Search and seizure guidelines
 - Defining the term 'expert witness'
49. Water boils at:
- zero degrees Celsius
 - twenty-five degrees Celsius
 - fifty degrees Celsius
 - one-hundred degrees Celsius
 - two hundred twelve degrees Celsius
50. Which of the following has higher frequencies and higher energy values in the electromagnetic spectrum?
- Visible light
 - Radio waves
 - Ultraviolet radiation
 - Infrared radiation
 - x-rays
51. The microscope examination of a bullet requires:
- Transmitted light
 - Reflected light
 - Condensed light
 - All of the above
 - None of the above
52. Which of these is NOT part of the optical system of a compound microscope?
- Abbe condenser
 - Objective lens
 - Eyeiece lens
 - The illuminator
 - The body tube
53. A human head hair is best characterized by:
- the absence of a cortex
 - its scale pattern
 - a medulla that is more than 1/2 the overall diameter of the hair shaft
 - a medulla that is absent
 - a continuous or interrupted medulla
54. Which of the following properties should be examined when compared two fibers?
- color
 - diameter
 - birefringence
 - the presence or absence of delustering particles
 - All of the above
55. Forcibly removed hairs are most likely to provide useful DNA evidence because they bear:
- Catagenic roots
 - Telogenic roots
 - Follicular tissue
 - Mitochondria
 - Hair scales

Name: _____

ID: A

56. Composition of a dye in a fiber can best be characterized by:
- Gas chromatography
 - Polarizing light microscopy
 - SEM
 - Thin-layer chromatography
 - Mass spectrometry
57. A criminalist is more likely to obtain DNA from hairs in the:
- Anagenic stage
 - Catagenic stage
 - Telogenic stage
 - Terminal stage
 - Embryonic stage
58. A substance composed of a large number of atoms that are usually arranged in repeating units is:
- molecule
 - Compound
 - element
 - polymer
 - monomer
59. A fingerprint of an element is obtained by the technique of:
- infrared spectrophotometry
 - Ultraviolet spectrophotometry
 - Gas chromatography
 - Emission spectroscopy
 - Thin-layer chromatography
60. You favorite class is:
- Forensics class
 - Calculus
 - organic chemistry
 - Any class but forensics class
 - none of the above
61. The speed of light is 3.00 m/s, the Earth is 93,000,000 mi away from the sun, how long does it take for the light to reach the earth?
- 8.00 min
 - 8.97 min
 - 8 min
 - 10 min
 - 8.0 min
62. The atoms of hydrogen, deuterium, and tritium all have the same number of protons, but differ in the number of neutrons they possess, the substances are:
- Elements
 - Compounds
 - Molecules
 - Radioactive
 - Isotopes
63. In neutron activation analysis, an element is identified by measuring the energy of emitting:
- protons
 - electrons
 - neutrons
 - gamma rays
 - alpha rays
64. Automobile finishes typically contain which layer(s)?
- Colorcoat
 - an electrocoat primer, colorcoat, and a clearcoat
 - clear coat
 - electrocoat primer and color coat
 - none of the above

Name: _____

ID: A

65. Which statement is true of a partial fingerprint?
- It must show at least a little of all ten fingers
 - Any print is sufficient for identification as long as there is enough to identify a basic pattern
 - any print can identify a criminal if it shows an adequate number of ridge characteristics
 - at least 75% of the pattern must be present for identification
 - none of the above
66. Chemical methods for developing latent fingerprints must be used in the following sequence:
- Iodine, physical developer, ninhydrin
 - Iodine, ninhydrin, physical developer
 - Ninhydrin, iodine, physical developer
 - Ninhydrin, physical developer, iodine
 - Physical developer, ninhydrin, iodine
67. A chemical method used for developing prints on a nonporous surface is:
- physical developer
 - ninhydrin
 - cyanacrylate
 - DFO
 - All of the above
68. how many different types of fingerprint patterns are there (subcategories)?
- 2
 - 9
 - 8
 - 7
 - 10
69. If you place an object in a liquid and it is suspended that means:
- the density of the object is greater than the density of the liquid
 - the density of the object is less than the density of the liquid
 - the object is floating but not sinking
 - you have gotten your object wet
 - the density of the object and liquid are the same
70. The Henry system can be used to classify people but not identify people individually because:
- Fingerprints are not an individual piece of evidence
 - 25% of the population have 1/1 fingerprints
 - too many people have the same fingerprints
 - the Henry system is no longer widely used
 - the Henry system is only used in English speaking countries