

DIGGING DEEPER! A FORENSIC STUDY GUIDE ON DNA TESTING

1. DNA is an acronym for what?
A. DEOXYNUCLEIC ACID
B. DERIBONUCLEIC ACID
C. DEOXYRIBONUCLEIC ACID
D. DEOXYRIBONUCLEIC ACTION
ANSWER: _____
2. Occasionally, DNA is shown as a matrix of 4 letters: A, C, G, and T. These are abbreviations for the 4 basic building blocks that make up DNA. What is the "A" an abbreviation for?
A. ADENINE
B. AGLUTININE
C. ASPARTAME
D. ASCORBIC ACID
ANSWER: _____
3. What is the "C" an abbreviation for?
A. CYTOPLASM
B. CHLOROFORM
C. CYTOSINE
D. CORTIZONE
ANSWER: _____
4. What is the "G" an abbreviation for?
A. GLIBUROL
B. GLOBURINE
C. GUANINE
D. GATANNA
ANSWER: _____
5. What is the "T" an abbreviation for?
A. THIAMINE
B. THIAZINE
C. THYMINE
D. THIGH
ANSWER: _____
6. Repeating units within the DNA strand are called what?
A. Similar Duplicate Strands (SDS)
B. Variable Number Tandem Repeats (VNTR)
C. Redundant Unit Number Strands (RUNS)
D. Partial Chain Characteristic Similarities (PCCS)
ANSWER: _____
7. Forensic DNA profiling was first developed in what year?
A. 1974
B. 1984
C. 1994
D. 2004
ANSWER: _____
8. Who first developed Forensic DNA profiling?
A. Sir Walter Raleigh
B. Sir William Love
C. Sir Thomas Moore
D. Sir Alec Jeffreys
ANSWER: _____
9. Individual markers used to distinguish between various samples are called what?
A. Alleles
B. Chromosomes
C. Genes
D. X-Factors
ANSWER: _____
10. The United States DNA Database is known as what:
A. AFIS
B. NRA
C. CODIS
D. DNABase
ANSWER: _____
11. What does the Acronym selected in 10 stand for?
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12. In the United States, how many core loci are used to distinguish genetic differences?
A. 10
B. 13
C. 16
D. 21
ANSWER: _____
13. According to the FBI, what are the approximate odds of 2 random people having the same DNA?
A: 1 in 3 Million
B: 1 in 3 Billion
C: 1 in 3 Trillion
D: 1 in 3 Quadrillion
ANSWER: _____
14. Which of the following are NOT acronyms for various types of DNA testing:
A: RFLP
B: PCR
C: Y-STR
D: X-STR
E: AmpFLP
F: mtDNA
ANSWER: _____
15. What method of DNA testing is used for extremely degraded samples?
A: Ninhydrin
B: Mitochondrial
C: Metformin
D: Amstar Grid Analysis
ANSWER: _____
16. Individuals with 2 complete sets of genes may provide false exclusion in Forensic DNA profiling. These types of people are known as:
A: Albinos
B: Chimeras
C: Mutants
D: Dwarfs
ANSWER: _____

DIGGING DEEPER! A FORENSIC STUDY GUIDE ON SEROLOGY

17. Antigens involved in the typing of blood are located where?
A. Inside the Red Blood Cells
B. On the Surface of the Red Blood Cells
C. Within the Blood Serum
D. In the Platelets
ANSWER: _____
18. Antibodies, on the other hand, are found where?
A. Inside the Red Blood Cells
B. On the Surface of the Red Blood Cells
C. Within the Blood Serum
D. In the Platelets
ANSWER: _____
19. Regarding Blood Type AB individuals, which of the following Statements are True?
A. Possess both A and B Antigens
B. Possess neither A or B Antigens
C. Possesses both A & B Antibodies
D. Possess neither A or B Antibodies
E. A & D above
F. B & C above
ANSWER: _____
20. TRUE or FALSE: An individual with Type AB Blood can receive Blood from any Blood group without ill effects.
ANSWER: _____
21. Which of the following is / are true regarding Individuals with Type O Blood:
A. Have both A & B Antigens
B. Have both A and B antibodies
C. Can donate Blood to anyone without rejection
D. Can receive blood from anyone without rejection
E. A & D Above
F. B & C Above
ANSWER: _____
22. Which of the following is / are true regarding Type B blood?
A. Have type A antigen
B. Have antibodies against Type B antigen
C. Can Donate Blood to Type B or AB Blood
D. Can Receive Blood from Type B or Type AB
ANSWER: _____
23. TRUE or FALSE: Blood Type can also be identified using saliva or semen samples.
ANSWER: _____
24. The reaction that defines the Blood Type is called:
A. Coagulation
B. Agglutination
C. Solidification
D. Sublimation
ANSWER: _____
25. ABO blood types are further stratified by adding either a + or a – behind the Blood type. This symbol is known as the Rh factor. What does the abbreviation “Rh” stand for?
A. Really Hot
B. Relatively High
C. Rhesus Factor
D. Rhetorical Value
ANSWER: _____
26. The Rh antigen, if present, is located in which chromosome?
A. 1st
B. 7th
C. 11th
D. 16th
ANSWER: _____
27. The Rh Factor is becomes critically important in which of the following processes
A. Unborn Fetus
B. Pregnant Mother
C. Blood Transfusion – Recipient
D. Organ Transplant – Donor
ANSWER: _____
28. In the case of Rh incompatibility, which symptom(s) might the patient present with?
A. Anemia
B. Jaundice
C. Edema
D. Dyspnea
E. All of the Above
F. None of the Above
ANSWER: _____
29. Which of the following cannot be identified through blood spatter analysis?
A. Direction and speed of Victim before the injury
B. Direction and speed of the Victim at the time of the injury
C. Direction and speed of the Victim after the injury
D. Direction and speed of the Assailant
ANSWER: _____
30. TRUE or FALSE: The larger the gun, the larger the blood droplets.
ANSWER: _____
31. Which of the following are NOT accepted acronyms in classifying blood spatter?
A. LVIS
B. MVIS
C. MISS
D. HVIS
ANSWER: _____
32. Another name for Red Blood Cells is:
A. Leukocytes
B. Platelets
C. Erythrocytes
D. Agglutinant
ANSWER: _____

DIGGING DEEPER! A FORENSIC STUDY GUIDE ON ENTOMOLOGY

33. Typically, the first type of insect to arrive at a death scene would be:
 A. Beetle
 B. Maggot
 C. Fly
 D. Moth
 ANSWER: _____
34. Blow Flies have been known to "smell" expired victims from:
 A. 100 yards away
 B. 1000 yards away
 C. 1 mile away
 D. 10 miles away
 ANSWER: _____
35. Match the common name with the Order:
 A. Lepidoptera
 B. Hymenoptera
 C. Coleoptera
 D. Diptera
 E. Psychodidae
 F. Acari
 ANSWERS: Fly: _____ Beetle: _____ Moth: _____ Wasp, Ant, and Bees _____
36. Nearly every Forensic report that deals with Entomology will use the acronym "PMI." What does this mean?
 A. Pre Meditated Interval
 B. Post Mortem Indicator
 C. Post Mortem Interval
 D. Pre Mature Investigation
 ANSWER: _____
37. Stages within the life cycle of various insects are called:
 A. Morphisms
 B. Cocoonia
 C. Instars
 D. Bollists
 ANSWER: _____
38. Which of the following is / are NOT primary stage(s) of decomposition?
 A. Fresh Bloated mummification
 B. Bloated mummification
 C. Putrefaction
 D. Black putrefaction
 E. Butyric fermentation
 F. Dry decay
 ANSWER: _____
39. TRUE or FALSE: The decomposition process is sped up on victims that perished with cocaine in their system
 ANSWER: _____
40. TRUE or FALSE: The decomposition process is suppressed on victims that perished due to Arsenic poisoning.
 ANSWER: _____
41. Excessive fat content has what effect on decomposition?
 A. Speeds it up
 B. Slows it down
 C. Has no effect
 D. Increases odor
 ANSWER: _____

DIGGING DEEPER! A FORENSIC STUDY GUIDE ON BALLISTICS

42. Bullets are measured by "Caliber". The definition of a 'caliber' is:
 A. Portion of a Centimeter
 B. Number of Millimeters
 C. Portion of an Inch
 D. None of the Above
 ANSWER: _____
43. Which is the larger diameter projectile?
 A. .45 Caliber
 B. .38 Caliber
 C. .22 Caliber
 D. .357 Caliber
 ANSWER: _____
44. Unique distinguishing features left on a projectile as it leaves the barrel are called:
 A. Ridges and Valleys
 B. Lands and Grooves
 C. Bifurcations
 D. Friction Ridges
 ANSWER: _____
45. These unique features are left on the projectile by spiral ribs within the barrel called:
 A. Knurlings
 B. Twists
 C. Friction Ridges
 D. Riflings
 ANSWER: _____
46. Spent brass casings are generally not found at the scene from which of the following types of guns?
 A. Automatics
 B. Semi-Automatics
 C. Revolvers
 D. Pump Guns
 ANSWER: _____
47. Most projectiles are made from:
 A. Iron
 B. Copper
 C. Brass
 D. Lead
 ANSWER: _____
48. A projectile that has been covered with another material is called:
 A. Jacketed
 B. Coated
 C. Hydro-shock
 D. Insulated
 ANSWER: _____

DIGGING DEEPER! A FORENSIC STUDY GUIDE ON FINGERPRINTS

49. What is the name given to the 10 to 16 points of a fingerprint used to compare to a database?
A. Bifurcations
B. Minutiae
C. Dots
D. Improvisations
ANSWER: _____
50. The unpredictable array of fine detail found on pads of the hands and feet are called what?
A. Friction Ridges
B. Bifurcations
C. Trifurcations
D. Undulations
ANSWER: _____
51. The first person to classify and document fingerprints in 1892 was:
A. Rollie Fingers
B. The Fresh Prints of Bellaire
C. Sir Francis Galton
D. Sir Walter Raleigh
ANSWER: _____
52. A single ridge splitting into two ridges is call a:
A. Fork
B. Bifurcation
C. Twinning
D. Convergence
ANSWER: _____
53. Fingerprints not visible to the naked eye are called:
A. Latex
B. Latent
C. Lament
D. Invisible
ANSWER: _____
54. Prints on a porous surface such as paper were treated by turning them purple. The process used was probably:
A. Cyano Acrylate Fuming
B. Silver Nitrate Misting
C. Iodine Fuming
D. Ninhydrin Saturation
ANSWER: _____
55. Which of the following tests require heat to develop the print?
A. Cyano Acrylate Fuming
B. Silver Nitrate Misting
C. Iodine Fuming
D. Ninhydrin Saturation
E. A & B
F. B & C
G. A & C
H. A & D
ANSWER: _____
56. Which of the following is NOT a recognized fingerprint pattern?
A. Loop
B. Whorl
C. Delta
D. Arch
ANSWER: _____
57. TRUE or FALSE: It is impossible for an individual to have more than two different types of finger.
ANSWER: _____
58. The common database used throughout the United States to identify fingerprints is called:
A. CODIS
B. AFIS
C. APIS
D. COFIS
ANSWER: _____
59. The 10-print card system developed in the early 1900s to classify fingerprints is called:
A. The Henry System
B. The George System
C. The Alexander System
D. The Fingerprint Classification System
ANSWER: _____
60. A fingerprint pattern that opens to the inside of the arm is called:
A. Radial
B. Posterior
C. Anterior
D. Ulnar
ANSWER: _____
61. Rigor Mortise is the temporary stiffening of the joints. The typical duration of the process is:
A. 12 hours to 24 hours after death
B. 6 hours to 36 hours after death
C. 3 hours to 72 hours after death
D. 1 hour to 96 hours after death
ANSWER: _____
62. The science of Fingerprint Identification is also known as:
A. Filangescopy
B. Digitology
C. Minutiaology
D. Dactyloscopy
ANSWER: _____
63. 3-D Fingerprints left in soft material such as wax or certain greases that identify ridge depths as well as width and length are called:
A. Dimensional
B. Plastic
C. Latent
D. Basal
ANSWER: _____

DIGGING DEEPER! A FORENSIC STUDY GUIDE ON CHEMISTRY

64. Resultant Chemical from mixing vinegar and baking soda
A. Calcium Carbonate
B. Sodium Hydrogen Carbonate
C. Sodium Acetate
D. Sodium Carbonate
ANSWER: _____
65. If ingested, can cause high blood pressure:
A. Lithium Chloride
B. Sodium Chloride
C. Potassium Chloride
D. Calcium Nitrate
ANSWER: _____
66. Primary chemical used in hand warmers and heat packs
A. Calcium Carbonate
B. Sodium Hydrogen Carbonate
C. Sodium Acetate
D. Sodium Carbonate
ANSWER: _____
67. Primary chemical used in State sanctioned lethal injections
A. Potassium Chloride
B. Calcium Nitrate
C. Lithium Chloride
D. Sodium Acetate
ANSWER: _____
68. One of the primary chemicals in the Oklahoma City bombing of 1995
A. Lithium Chloride
B. Calcium Sulfate
C. Calcium Carbonate
D. Calcium Nitrate
ANSWER: _____
69. May be found in antiseptics, athlete's foot medicines, insecticides, and jewelry cleaners
A. Boric Acid
B. Ammonium Chloride
C. Magnesium Sulfate
D. Potassium Chloride
ANSWER: _____
70. When mixed with water, this substance makes a non-newtonian paste called Oobleck
A. Glucose
B. Sucrose
C. Cornstarch
D. Calcium Carbonate
ANSWER: _____
71. Which of the following Chemicals are NOT used in the production of fertilizer?
Potassium Chloride
Magnesium Sulfate
Ammonium Chloride
Calcium Nitrate
ANSWER: _____
72. Which of the following is soluble in water?
A. Calcium Carbonate
B. Calcium Nitrate
C. Calcium Sulfate
D. Cornstarch
ANSWER: _____
73. Used in the manufacturing of flux for aluminum brazing
A. Lithium Chloride
B. Potassium Chloride
C. Sodium Chloride
D. Ammonium Chloride
ANSWER: _____
74. Used in Peanut Butter jars and Salad Dressing bottles
A. PMMA
B. PETE
C. HDPE
D. PS
ANSWER: _____
75. Used in Grocery Store meat trays and football game hot chocolate cups
A. PC
B. PS
C. PVC
D. PP
ANSWER: _____
76. Used to make plexiglass such as ice rink walls
A. PC
B. HDPE
C. PETE
D. PMMA
ANSWER: _____
77. Used to make CDs, DVDs, and some optic lenses
A. PC
B. PS
C. PVC
D. PP
ANSWER: _____
78. Used to make plastic grocery bags and sandwich bags
A. HDPE
B. PP
C. PS
D. LDPE
ANSWER: _____

DIGGING DEEPER! A FORENSIC STUDY GUIDE ON REFRACTION

79. The Physics Law that states " $\sin(\theta_1) / \sin(\theta_2) = \text{constant} = n_{\text{glass}} = 1.50$ " is known as:
A. Snell's Law
B. Smell's Law
C. Shell's Law
D. Spell's Law
ANSWER: _____
80. The angle between the light striking the glass and the perpendicular plane to the glass is called:
A. Occipital Angle
B. Angle of Incidence
C. Angle of Refraction
D. Angle of Reflection
ANSWER: _____
81. The angle between the light as it passes through the glass and the perpendicular plane to the glass is called:
A. Occipital Angle
B. Angle of Incidence
C. Angle of Refraction
D. Angle of Reflection
ANSWER: _____
82. The perpendicular plane to the glass that the above angles are measured from is known as:
A. Angular Baseline
B. Perpendicular Baseline
C. Refractory Baseline
D. Normal Plane
ANSWER: _____
83. TRUE or FALSE: The Refraction Index of water is always less than the Refraction Index of Glass
ANSWER: _____
84. Which of the following types of glass would have the higher Index of Refraction?
A. Albite Glass
B. Crown Glass
C. Lanthanum Glass
D. Flint Glass
ANSWER: _____
85. Eyeglasses use the refractory principle to adjust the focal lengths within the eye to correct focal irregularities, although blue light will still have a shorter focal length than red light. This is known as:
A. Spectrum Occlusion
B. Chromatic Aberration
C. Ultraviolet Variation
D. Visible Light Adjustment
ANSWER: _____
86. In order to understand the concept of refraction, one must know the speed of light in air is:
A. 186,000 feet / second
B. 186,000 miles / hour
C. 186,000 Km / minute
D. 186,000 miles / second
ANSWER: _____
87. Light that is refracted through a prism can be separated into the various colors within the spectrum. This process is called:
A. Dispersion
B. Fractionalization
C. Spectral Separation
D. Rainbowism
ANSWER: _____
88. If light passed through a transparent media and the entrance angle does not equal the exit angle, which of the following statements must be true?
A. The Media must not be totally transparent
B. The Media must have the same Refractive Index as the air surrounding it
C. The media must be thicker on one edge than the other
D. The Light must not be full spectrum
ANSWER: _____