Quarter 2 Sample Questions

1. The process of ___________ determines a substance’s physical or chemical identity with as near absolute certainty as existing analytical techniques will permit.
2. The number and type of tests needed to identify a substance must be sufficient to ___________ all other substances from consideration.
3. A(n) ___________ analysis subjects a suspect and a standard/reference specimen to the same tests and examination for the ultimate purpose of determining whether they have a common origin.
4. ___________ is the frequency of occurrence of an event.
5. Evidence that can be traced to a common source with an extremely high degree of probability is said to possess ___________ characteristics.
6. Evidence associated with a group and not to a single source is said to possess ___________ characteristics.
7. True or False: One of the major deficiencies of forensic science is the inability of the examiner to assign exact or approximate probability values to the comparison of most class physical evidence. ___________
8. The value of class physical evidence lies in its ability to ___________ events with data in a manner that is, as nearly as possible, free of human error and bias.
9. The ___________ accorded physical evidence during a trial is left entirely to the trier of fact.
10. True or False: Physical evidence cannot be used to exclude or exonerate a person from suspicion of committing a crime. ___________
11. True or False: The distinction between individual and class evidence is always easy to make. ___________
12. Modern analytical techniques have become so sensitive that the forensic examiner must be aware of the ___________ among materials when interpreting the significance of comparative data.
13. True or False: A fingerprint can be positively identified through the IAFIS database. ___________
14. True or False: A database applicable to DNA profiling is ___________.
15. True or False: A crime can accurately be reconstructed solely on the presence or absence of physical evidence. ___________
16. True or False: Underlying emotional factors are the primary motives leading to the repeated use of a drug. ___________
17. Drugs such as alcohol, heroin, amphetamines, barbiturates, and cocaine can lead to a (high, low) degree of psychological dependence with repeated use.
18. The development of (psychological, physical) dependence on a drug is shown by withdrawal symptoms such as convulsions when the user stops taking the drug.
19. True or False: Abuse of barbiturates can lead to physical dependency. ___________
20. True or False: Repeated use of LSD leads to physical dependency. 

21. Physical dependency develops only when the drug user adheres to a _________ schedule of drug intake.

22. Narcotic drugs are ___________ that ___________ the central nervous system.

23. ___________ is a gummy, milky juice exuded through a cut made in the unripe pod of the opium poppy.

24. The primary constituent of opium is ___________.

25. ___________ is a chemical derivative of morphine made by reacting morphine with acetic anhydride.

26. A legally manufactured drug that is chemically related to heroin and heavily abused is ___________.

27. True or False: Methadone is classified as a narcotic drug, even though it is not derived from opium or morphine. ___________

28. Drugs that cause marked alterations in mood, attitude, thought processes, and perceptions, are called ___________.

29. ___________ is the sticky resin extracted from the marijuana plant.

30. The active ingredient of marijuana largely responsible for its hallucinogenic properties is ___________.

31. True or False: The potency of a marijuana preparation depends on the proportion of the various plant parts in the mixture. ___________

32. The marijuana preparation with the highest THC content is ___________.

33. LSD is a chemical derivative of ___________, a chemical obtained from the ergot fungus that grows on certain grasses and grains.

34. The drug phencyclidine is often manufactured for the illicit-drug market in _________ laboratories.

35. Alcohol (stimulates, depresses) the central nervous system.

36. ___________ are called “downers” because they depress the central nervous system.

37. Phenobarbital is an example of a (short-, long-) acting barbiturate.

38. ___________ is a powerful sedative and muscle relaxant that possesses many of the depressant properties of barbiturates.

39. ___________ are drugs used to relieve anxiety and tension without inducing sleep.

40. True or False: Glue sniffing stimulates the central nervous system. ___________

41. ___________ are a group of synthetic drugs that stimulate the central nervous system.

42. The most severe form of amphetamine abuse stems from its (oral, intravenous) administration.

43. An increasing percentage of amphetamines available on the illicit drug market originate from ___________ drug laboratories.

44. ___________ is extracted from the leaf of the coca plant.

45. Traditionally, cocaine is ___________ into the nostrils.
46. True or False: Cocaine is a powerful central nervous system depressant. 

47. The two drugs usually associated with drug-facilitated sexual assaults are _____ and _____.

48. ________ steroids are designed to promote muscle growth but have harmful side effects.

49. The federal drug-control law is known as _________.

50. Federal law establishes ________ schedules of classification for the control of dangerous drugs.

51. Drugs that have no accepted medical use are placed in schedule _________.

52. Librium and Valium are listed in schedule _________.

53. True or False: Color tests are used to identify drugs conclusively. 

54. The ________ color test reagent turns purple in the presence of heroin.

55. The ________ color test reagent turns orange-brown in the presence of amphetamines.

56. The Duquenois-Levine test is a valuable color test for _________.

57. The ________ test is a widely used color test for cocaine.

58. ________ tests tentatively identify drugs by the size and shape of crystals formed when the drug is mixed with specific reagents.

59. ________ provides a means of separating drugs from their diluents while making a tentative identification.

60. The pattern of an ________ absorption spectrum is unique for each drug and thus is a specific test for identification.

61. The gas chromatograph, in combination with the _________, can separate the components of a drug mixture and then unequivocally identify each substance present in the mixture.

62. All packages containing drugs must be marked for identification by the police officer before being sent to the laboratory in order to maintain the______.

63. The study of the absorption of light by chemical substances is known as _________.

64. A mixture’s components can be separated by the technique of _________.

65. True or False: Henry’s law describes the distribution of a volatile chemical compound between its liquid and gas phases. _________.

66. The (higher, lower) the solubility of a gas in a liquid, the greater its tendency to remain dissolved in that liquid.

67. True or False: In order for chromatography to occur, one phase must move continuously in one direction over a stationary phase. _________.

68. A technique that separates mixtures on the basis of their distribution between a stationary liquid phase and a moving gas phase is _________.
69. The time required for a substance to travel through the gas chromatographic column is a useful identifying characteristic known as ___________.

70. Solid materials that are not readily dissolved in solvents for injection into the gas chromatograph can be ____________ into numerous gaseous products prior to entering the gas chromatograph.

71. A technique that uses a moving liquid phase and a stationary solid phase to separate mixtures is ____________.

72. Because most chemical compounds are colorless, the final step of the thin-layer development usually requires that they be ____________ by spraying with a chemical reagent.

73. The distance a spot has traveled up a thin-layer plate can be assigned a numerical value known as the ____________ value.

74. True or False: Thin-layer chromatography yields the positive identification of a material. ____________

75. The migration of materials along a stationary phase under the influence of an electrical potential describes the technique of ____________.

76. The amount of radiation a substance will absorb is directly proportional to its concentration as defined by ____________ law.

77. The ____________ is the instrument used to measure and record the absorption spectrum of a chemical substance.

78. The function of the ____________ is to select a single frequency of light emanating from the spectrophotometer’s source.

79. An (ultraviolet, infrared) absorption spectrum provides a unique “fingerprint” of a chemical substance.

80. The technique of ____________ exposes molecules to a beam of high-energy electrons in order to fragment them.

81. True or False: A mass spectrum is normally considered a specific means for identifying a chemical substance. ____________

82. The most heavily abused drug in the Western world is ____________.

83. True or False: Toxicologists are employed only by crime laboratories. ____________

84. The amount of alcohol in the blood (is, is not) directly proportional to the concentration of alcohol in the brain.

85. True or False: Blood levels have become the accepted standard for relating alcohol intake to its effect on the body. ____________

86. Alcohol consumed on an empty stomach is absorbed (faster, slower) than an equivalent amount of alcohol taken when there is food in the stomach.

87. Under normal drinking conditions, alcohol concentration in the blood peaks in ____________ to ____________ minutes.

88. In the postabsorption period, alcohol is distributed uniformly among the ____________ portions of the body.

89. Alcohol is eliminated from the body by ____________ and ____________.

90. Ninety-five to 98 percent of the alcohol is ____________ to carbon dioxide and water.

91. Oxidation of alcohol takes place almost entirely in the ____________.
92. The amount of alcohol exhaled in the ___________ is directly proportional to the concentration of alcohol in the blood.
93. Alcohol is eliminated from the blood at an average rate of ___________ percent w/v.
94. Alcohol is absorbed into the blood from the ___________ and ___________.
95. A(n) ___________ carries blood away from the heart; a(n) ___________ carries blood back to the heart.
96. The ___________ artery carries deoxygenated blood from the heart to the lungs.
97. Alcohol passes from the blood capillaries into the ___________ sacs in the lungs.
98. One milliliter of blood contains the same amount of alcohol as approximately ___________ milliliters of alveolar breath.
99. When alcohol is being absorbed into the blood, the alcohol concentration in venous blood is (higher, lower) than that in arterial blood.
100. The Breathalyzer and similar devices are designed to measure the alcohol content of ___________ breath.
101. Most modern breath testers use ___________ radiation to detect and measure alcohol in the breath.
102. To avoid the possibility of "mouth alcohol" the operator of a breath tester must NOT allow the subject to take any foreign materials into the mouth for ___________ minutes prior to the test.
103. Alcohol can be separated from other volatiles in blood and quantitated by the technique of ___________.
104. Roadside breath testers that utilize a ___________ detector are becoming increasingly popular with the law enforcement community.
105. True or False: Portable handheld roadside breath testers for alcohol provide evidential test results. ___________.
106. Usually, when a person’s blood-alcohol concentration is in the range of 0.10 percent, horizontal-gaze nystagmus begins before the eyeball has moved ___________ degrees to the side.
107. When drawing blood for alcohol testing, the suspect’s skin must first be wiped with a ___________ disinfectant.
108. Failure to add a preservative, such as sodium fluoride, to blood removed from a living person may lead to a(n) (decline, increase) in alcohol concentration.
109. Most states have established ___________ percent w/v as the impairment limit for blood-alcohol concentration.
110. In the case of ___________, the Supreme Court ruled that taking nontestimonial evidence, such as a blood sample, did not violate a suspect’s Fifth Amendment rights.
111. Heroin is changed upon entering the body into ___________.
112. The body fluids ___________ and ___________ are both desirable for the toxicological examination of a living person suspected of being under the influence of a drug.
113. A large number of drugs can be classified chemically as ___________ and ___________.

114. Water with a pH value (less, greater) than 7 is basic.

115. Barbiturates are classified as ___________ drugs.

116. Drugs are extracted from body fluids and tissues by carefully controlling the ___________ of the medium in which the sample has been dissolved.

117. The technique of ___________ is based on specific drug antibody reactions.

118. Both ___________ and ___________ tests must be incorporated into the drug-testing protocol of a toxicology laboratory to ensure the correctness of the laboratory’s conclusions.

119. The gas ___________ combines with hemoglobin in the blood to form carboxyhemoglobin, thus interfering with the transportation of oxygen in the blood.

120. The amount of carbon monoxide in blood is usually expressed as ___________.

121. True or False: Blood levels of drugs can alone be used to draw definitive conclusions about the effects of a drug on an individual. ___________.

122. Interaction of alcohol and barbiturates in the body can produce a(n) ___________ effect.

123. The level of a drug present in the urine is by itself a (good, poor) indicator of how extensively an individual is affected by a drug.

124. Urine and blood drug levels are best used by law enforcement authorities and the courts to ___________ other investigative and medical findings pertaining to an individual’s condition.

125. A microscope uses a combination of ___________ to magnify an image.

126. A type of image that cannot be viewed directly is called a(n) ___________ image.

127. A(n) ___________ microscope consists of two lenses mounted at each end of a hollow tube.

128. The lens closest to the specimen is called the ___________.

129. The lens nearest the viewer’s eye is called the ___________.

130. The image seen through a compound microscope is (virtual, real).

131. True or False: The coarse and fine adjustments are part of the microscope’s mechanical system. ___________.

132. A transparent specimen is viewed through a microscope using ___________ light.

133. An opaque object requires ___________ illumination for viewing with a microscope.

134. A(n) ___________ collects light rays from the base illuminator and concentrates them on the specimen.

135. A microscope that remains in focus regardless of which objective lens is rotated into place is ___________.

136. A microscope with only one eyepiece is ___________; one with two eyepieces is ___________.
137. Hair is an appendage of the skin, growing out of an organ known as the _______

138. The three layers of the hair shaft are the ________, the ________, and the _________.

139. True or False: The scales of most animal hairs can be described as looking like shingles on a roof. ______

140. The ________ contains the pigment granules that impart color to hair.

141. The central canal running through many hairs is known as the ________.

142. The diameter of the medulla relative to the diameter of the hair shaft is the ________.

143. Human hair generally has a medullary index of less than ________; the hair of most animals has an index of ________ or greater.

144. Human head hairs generally exhibit (continuous, absent) medullae.

145. If a medulla exhibits a patterned, the hair is (human, animal) in origin.

146. The three stages of hair growth are the _________, _________, and _________ phases.

147. A single hair (can, cannot) be individualized to one person by microscopic examination.

148. In making hair comparisons, it is best to view the hairs side by side under a(n) ________ microscope.

149. ________ hairs are short and curly, with wide variation in shaft diameter.

150. It (is, is not) possible to determine when hair was last bleached or dyed.

151. True or False: The age and sex of the individual from whom a hair sample has been taken can be determined through an examination of the hair’s morphological features. ______

152. Hair forcibly removed from the body (always, often) has follicular tissue adhering to its root.

153. Microscopic hair comparisons must be regarded by police and courts as presumptive in nature, and all positive microscopical hair comparisons must be confirmed by ________ typing.

154. True or False: Currently, DNA typing can individualize a single hair. ______

155. A(n) _________ hair root is a likely candidate for DNA typing.

156. A minimum collection of _________ full-length hairs normally ensures a representative sampling of head hair.

157. A minimum collection of _________ full-length pubic hairs is recommended to cover the range of characteristics present in this region of the body.

158. _________ fibers are derived totally from animal or plant sources.

159. The most prevalent natural plant fiber is _________.

160. True or False: Regenerated fibers, such as rayon and acetate, are manufactured by chemically treating cellulose and passing it through a spinneret. _________
161. Fibers manufactured solely from synthetic chemicals are classified as __________.

162. True or False: Polyester was the first synthetic fiber. __________

163. __________ are composed of a large number of atoms arranged in repeating units.

164. The basic unit of the polymer is called the __________.

165. __________ are polymers composed of thousands of amino acids linked in a highly organized arrangement and sequence.

166. True or False: A first step in the forensic examination of fibers is to compare color and diameter. __________

167. The microspectrophotometer employing __________ light is a convenient way for analysts to compare the colors of fibers through spectral patterns.

168. The dye components removed from fibers can be separated and compared by __________ chromatography.

169. Synthetic fibers possess the physical property of __________ because they are crystalline.

170. The microspectrophotometer employing __________ light provides a rapid and reliable method for identifying the generic class of a single fiber.

171. Normally, fibers possess (individual, class) characteristics.