Review Questions Chapters 1, 2, 4 and 14

1. The application of science to law describes _________.

2. The fictional exploits of ________ excited the imagination of an emerging generation of forensic scientists and criminal investigators.

3. A system of personal identification using a series of body measurements was first devised by _________.

4. ________ is responsible for developing the first statistical study proving the uniqueness of fingerprints.

5. The Italian scientist ________ devised the first workable procedure for typing dried bloodstains.

6. The comparison microscope became an indispensable tool of firearms examination through the efforts of _________.

7. Early efforts at applying scientific principles to document examination are associated with _________.

8. The application of science to criminal investigation was advocated by the Austrian magistrate _________.

9. One of the first functional crime laboratories was formed in Lyons, France, under the direction of _________.

10. The transfer of evidence expected to occur when two objects come in contact with one another was a concept first advocated by the forensic scientist _________.

11. The first forensic laboratory in the United States was created in 1923 by the ________ Police Department.

12. The state of _________ is an excellent example of a geographical area in the United States that has created a system of integrated regional and satellite laboratories.

13. In contrast to the United States, Britain’s crime laboratory system is characterized by a national system of _________ laboratories.

14. The increasing demand for _________ analyses has been the single most important factor in the recent expansion of crime laboratory services in the United States.

15. Four important federal agencies offering forensic services are _________, _________, _________, and _________.
16. A decentralized system of crime laboratories currently exists in the United States under the auspices of various governmental agencies at the ___________, ___________, ___________, and ___________ levels of government.

17. The application of chemistry, physics, and geology to the identification and comparison of crime-scene evidence is the function of the ___________ unit of a crime laboratory.

18. The examination of blood, hairs, fibers, and botanical materials is conducted in the ___________ unit of a crime laboratory.

19. The examination of bullets, cartridge cases, shotgun shells, and ammunition of all types is the responsibility of the ___________ unit.

20. The examination of body fluids and organs for drugs and poisons is a function of the ___________ unit.

21. The ___________ unit dispatches trained personnel to the scene of a crime to retrieve evidence for laboratory examination.

22. The “general acceptance” principle, which serves as a criterion for the judicial admissibility of scientific evidence, was set forth in the case of ___________.

23. In the case of ___________, the Supreme Court ruled that in assessing the admissibility of new and unique scientific tests the trial judge did not have to rely solely on the concept of “general acceptance.”

24. True or False: The U.S. Supreme Court decision in Kumho Tire Co., Ltd. v. Carmichael restricted the “gatekeeping” role of a trial judge only to scientific testimony. ___________

25. A Florida case that exemplifies the flexibility and wide discretion that the trial judge has in matters of scientific inquiry is ___________.

26. A(n) ___________ is a person who can demonstrate a particular skill or has knowledge in a trade or profession that will help the court determine the truth of the matter at issue.

27. True or False: The expert witness’ courtroom demeanor may play an important role in deciding what weight the court will assign to his or her testimony. ___________

28. True or False: The testimony of an expert witness incorporates his or her personal opinion relating to a matter he or she has either studied or examined. ___________
29. The ability of the investigator to recognize and collect crime-scene evidence properly depends on the amount of ___________ received from the crime laboratory.

30. The term ___________ encompasses all objects that can establish whether a crime has been committed or can link a crime and its victim or its perpetrator.

31. True or False: Scientific evaluation of crime-scene evidence can usually overcome the results of a poorly conducted criminal investigation. ___________

32. True or False: The techniques of physical evidence collection require a highly skilled individual who must specialize in this area of investigation. ___________

33. All unauthorized personnel must be ___________ from crime scenes.

34. Three methods for recording the crime scene are ___________, ___________, and ___________.

35. The most important prerequisite for photographing a crime scene is to have it in a(n) ___________ condition.

36. Photographs of physical evidence must include overviews as well as ___________ to record the details of objects.

37. An investigator need only draw a(n) ___________ sketch at the crime scene to show its dimensions and pertinent objects.

38. A detailed search of the crime scene for physical evidence must be conducted in a(n) ___________ manner.

39. Besides the more obvious items of physical evidence, possible ___________ of trace evidence must be collected for detailed examination in the laboratory.

40. In cooperation with the medical examiner or coroner, evidence retrieved from a deceased victim to be submitted to the crime laboratory should include ___________, ___________, ___________, ___________, ___________, ___________, and ___________.

41. Whenever possible, trace evidence (is, is not) to be removed from the object that bears it.

42. Each item collected at the crime scene must be placed in a(n) ___________ container.

43. True or False: An ordinary mailing envelope is considered a good general-purpose evidence container. ___________
44. An airtight container (is, is not) recommended packaging material for bloodstained garments.

45. As a matter of routine, all items of clothing are to be ___________ before packaging.

46. True or False: Charred debris recovered from the scene of an arson is best placed in a porous container. __________

47. The possibility of future legal proceedings requires that a(n) ___________ be established with respect to the possession and location of physical evidence.

48. Most physical evidence collected at the crime site will require the accompanying submission of ___________ material for comparison purposes.

49. When ___________ sets in after death, the skin appears dark blue or purple in the areas closest to the ground.

50. True or False: One method for approximating the time of death is to determine body temperature.

51. A(n) ___________ property describes the behavior of a substance without reference to any other substance.

52. A(n) ___________ property describes the behavior of a substance when it reacts or combines with another substance.

53. The ___________ system of measurement was devised by the French Academy of Science in 1791.

54. The basic units of measurement for length, mass, and volume in the metric system are the ___________, ___________, and ___________, respectively.

55. A centigram is equivalent to ___________ gram(s).

56. A milliliter is equivalent to ___________ liter(s).

57. 0.2 gram is equivalent to ___________ milligram(s).

58. One cubic centimeter (cc) is equivalent to one ___________.

59. True or False: One meter is slightly longer than a yard. __________

60. The equivalent of 1 pound in grams is ___________.

61. True or False: A liter is slightly larger than a quart. __________

62. ___________ is a measure of a substance’s heat intensity.
63. There are ___________ degrees Fahrenheit between the freezing and boiling points of water.

64. There are ___________ degrees Celsius between the freezing and boiling points of water.

65. The amount of matter an object contains determines its ___________.

66. The simplest type of balance for weighing is the ___________.

67. Mass per unit volume defines the property of ___________.

68. If an object is immersed in a liquid of greater density, it will (sink, float).

69. The bending of a light wave because of a change in velocity is called ___________.

70. The physical property of ___________ is determined by the ratio of the velocity of light in a vacuum to light’s velocity in a substance.

71. True or False: Solids having an orderly arrangement of their constituent atoms are crystalline. ___________

72. Solids that have their atoms randomly arranged are said to be ___________.

73. The crystal calcite has two indices of refraction. The difference between these two values is known as ___________.

74. The process of separating light into its component colors or frequencies is known as ___________.

75. A hard, brittle, amorphous substance composed mainly of silicon oxides is ___________.

76. Glass that can be physically pieced together has ___________ characteristics.

77. The two most useful physical properties of glass for forensic comparisons are ___________ and ___________.

78. Comparing the relative densities of glass fragments is readily accomplished by a method known as ___________.

79. When glass is immersed in a liquid of similar refractive index, its ___________ disappears and minimum contrast between the glass and liquid is observed.

80. The exact numerical density and refractive indices of glass can be correlated to ___________ in order to assess the evidential value of the comparison.
81. The fracture lines radiating outward from a crack in glass are known as _______ fractures.

82. A crater-shaped hole in glass is (narrower, wider) on the side where the projectile entered the glass.

83. True or False: It is easy to determine from the size and shape of a hole in glass whether it was made by a bullet or some other projectile. _________

84. True or False: Stress marks on the edge of a radial crack are always perpendicular to the edge of the surface on which the impact force originated. _________

85. A fracture line (will, will not) terminate at an existing line fracture.

86. The first systematic attempt at personal identification was devised and introduced by _________.

87. A system of identification relying on precise body measurements is known as _________.

88. The fingerprint classification system used in most English-speaking countries was devised by _________.

89. True or False: The first systematic and official use of fingerprints for personal identification in the United States was adopted by the New York City Civil Service Commission. _________

90. The individuality of a fingerprint (is, is not) determined by its pattern.

91. A point-by-point comparison of a fingerprint’s _________ must be demonstrated in order to prove identity.

92. _________ are a reproduction of friction skin ridges.

93. The form and pattern of skin ridges are determined by the (epidermis, dermal papillae).

94. A permanent scar forms in the skin only when an injury damages the _________.

95. Fingerprints (can, cannot) be changed during a person’s lifetime.

96. The three general patterns into which fingerprints are divided are _________, _________, and _________.

97. The most common fingerprint pattern is the _________.


98. Approximately 5 percent of the population has the ___________ fingerprint pattern.

99. A loop pattern that opens toward the thumb is known as a(n) (radial, ulnar) loop.

100. The pattern area of the loop is enclosed by two diverging ridges known as ___________.

101. The ridge point nearest the type-line divergence is known as the ___________.

102. All loops must have (one, two) delta(s).

103. The approximate center of a loop pattern is called the ___________.

104. If an imaginary line drawn between the two deltas of a whorl pattern touches any of the spiral ridges, the pattern is classified as a (plain whorl, central pocket loop).

105. The simplest of all fingerprint patterns is the ___________.

106. Arches (have, do not have) type lines, deltas, and cores.

107. The presence or absence of the ___________ pattern is used as a basis for determining the primary classification in the Henry system.

108. The largest category (25 percent) in the primary classification system is (1/1, 1/2).

109. A fingerprint classification system (can, cannot) unequivocally identify an individual.

110. True or False: Computerized fingerprint search systems match prints by comparing the position of bifurcations and ridge endings. ___________

111. A fingerprint left by a person with soiled or stained fingertips is called a ___________.

112. ___________ fingerprints are impressions left on a soft material.

113. Fingerprint impressions that are not readily visible are called ___________.

114. Fingerprints on hard and nonabsorbent surfaces are best developed by the application of a(n) ___________.

115. Fingerprints on porous surfaces are best developed with ___________ - treatment.
116. ___________ vapors chemically combine with fatty oils or residual water to visualize a fingerprint.

117. The chemical ___________ visualizes fingerprints by its reaction with amino acids.

118. Chemical treatment with ___________ visualizes fingerprints on porous articles that may have been wet at one time.

119. True or False: A latent fingerprint is first treated with Physical Developer followed by ninhydrin. ___________

120. A chemical technique known as ___________ is used to develop latent prints on nonporous surfaces such as metal and plastic.

121. ___________ occurs when a substance absorbs light and reemits the light in wavelengths longer than the illuminating source.

122. High-intensity light sources, known as ___________, are effective in developing latent fingerprints.

123. Once a fingerprint has been visualized, it must be preserved by ___________.

124. The image produced from a digital file is composed of numerous square electronic dots called ___________.