

# Answers to Odd-Numbered Review Questions

## Chapter 1

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|---|--|
| 1. forensic science   | 17. trace evidence   |
| 3. Alphonse Bertillon   | 19. Firearms   |
| 5. Leone Lattes   | 21. crime-scene investigation                                |
| 7. Albert Osborn  | 23. <i>-Daubert v. Merrell Dow<br/>Pharmaceuticals, Inc.</i> |
| 9. Edmond Locard  | 25. <i>Coppolino v. State</i>                                |
| 11. Los Angeles   | 27. True   |
| 13. regional  | 29. training   |
| 15. The Federal Bureau of<br>Investigation; the Drug<br>Enforcement Administration; the Bureau of Alcohol, Tobacco, Firearms and Explosives; the<br>U.S. Postal Service | 31. True   |

## Chapter 2

- |                                     |                        |
|-------------------------------------|------------------------|
| 1. physical evidence                | 13. separate           |
| 3. False                            | 15. is not             |
| 5. photography; sketching;<br>notes | 17. False              |
| 7. close-ups                        | 19. standard/reference |
|                                     | 21. arson or fire      |

9. systematic

11. clothing; fingernail scrapings; head and pubic hairs; blood; vaginal, anal, and oral swabs;  
bullets; hand swabs

### **Chapter 3**

1. identification

9. weight

3. comparative

11. False

5. individual

13. False

7. True

15. False

### **Chapter 4**

1. physical

21. True

3. metric

23. birefringence

5. 1/100

25. glass

7. 200

27. density; refractive index

9. True

29. Becke line

11. True

31. radial

13. 180

33. False

15. mass

35. will

17. density

37. minerals

19. refraction

39. True

## Chapter 5

1. matter
3. 118
5. atom
7. molecule
9. has no
11. less
13. organic
15. qualitative; quantitative
17. chromatography
19. higher
21. gas chromatography
23. pyrolyzed
25. thin-layer chromatography
27.  $R_f$
29. electrophoresis
31. wavelength
33. electromagnetic
35. laser
37. True
39. can
41. spectrophotometer
43. infrared
45. True

## Chapter 6

1. oxygen; silicon
3. trace
5. emission spectrum
7. line
9. False
19. protons
21. True
23. light
25. isotopes
27. alpha rays; beta rays;

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|-------------------------------|---------------------------------|
| 11. carbon                    | gamma rays                      |
| 13. does                      | 29. gamma rays                  |
| 15. proton; neutron; electron | 31. neutron activation analysis |
| 17. positive                  | 33. crystalline                 |

## Chapter 7

- |                            |                            |
|----------------------------|----------------------------|
| 1. lenses                  | 17. decreases              |
| 3. compound                | 19. decreases              |
| 5. eyepiece or ocular lens | 21. True                   |
| 7. True                    | 23. False                  |
| 9. vertical or reflected   | 25. plane-polarized        |
| 11. parfocal               | 27. polarizing             |
| 13. magnifying power       | 29. microspectrophotometer |
| 15. numerical aperture     | 31. X-rays                 |

## Chapter 8

- |                  |               |
|------------------|---------------|
| 1. hair follicle | 23. Cotton    |
| 3. True          | 25. synthetic |
| 5. medulla       | 27. Polymers  |
| 7. $1/3$ ; $1/2$ | 29. Proteins  |
| 9. animal        | 31. visible   |

- |            |                        |
|------------|------------------------|
| 11. cannot | 33. birefringence      |
| 13. pubic  | 35. class              |
| 15. False  | 37. layer structure    |
| 17. DNA    | 39. electrocoat primer |
| 19. anagen | 41. binder             |
| 21. 24     | 43. True               |

## **Chapter 9**

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|-----------------------------------|----------------------|
| 1. True                           | 25. False            |
| 3. physical                       | 27. intravenous      |
| 5. False                          | 29. Cocaine          |
| 7. analgesics; depress            | 31. False            |
| 9. morphine                       | 33. Anabolic         |
| 11. OxyContin                     | 35. five             |
| 13. hallucinogens                 | 37. IV               |
| 15. tetrahydrocannabinol<br>(THC) | 39. Marquis          |
| 17. liquid hashish                | 41. marijuana        |
| 19. clandestine                   | 43. Microcrystalline |
| 21. Barbiturates                  | 45. infrared         |
|                                   | 47. cystolithic      |

23. Methaqualone (Quaalude)

## Chapter 10

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|------------------------------|------------------------------------|
| 1. ethyl alcohol             | 23. fuel cell                      |
| 3. is                        | 25. 45                             |
| 5. faster                    | 27. decline                        |
| 7. watery                    | 29. <i>Schmerber v. California</i> |
| 9. oxidized                  | 31. blood, urine                   |
| 11. breath                   | 33. greater                        |
| 13. stomach; small intestine | 35. pH                             |
| 15. pulmonary                | 37. screening, confirmation        |
| 17. 2100                     | 39. percent saturation             |
| 19. deep lung                | 41. synergistic                    |
| 21. fifteen to twenty        | 43. corroborate                    |

## Chapter 11

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|-------------------------|-----------------------|
| 1. False                | 25. porous            |
| 3. False                | 27. gas chromatograph |
| 5. chemical, mechanical | 29. True              |
| 7. absorb, liberate     | 31. cannot            |
| 9. exothermic           | 33. low               |

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|--|-----------------------------|
| 11. endothermic                            | 35. black powder; smokeless |
| 13. ignition                               | powder                      |
| 15. flash point                            | 37. False                   |
| 17. Glowing combustion or<br>smoldering    | 39. is not                  |
| 19. Spontaneous combustion                 | 41. RDX                     |
| 21. potassium nitrate;<br>charcoal, sulfur | 43. initiating              |
| 23. Origin                                 | 45. collection              |
|  | 47. acetone                 |
|  | 49. infrared spectroscopy   |

## Chapter 12

- |                    |                     |
|--------------------|---------------------|
| 1. type            | 25. benzidine       |
| 3. Plasma          | 27. precipitin      |
| 5. Red blood cells | 29. monoclonal      |
| 7. A               | 31. Enzymes         |
| 9. A; B            | 33. electrophoresis |
| 11. antibodies     | 35. gene            |
| 13. True           | 37. 23              |
| 15. neither        | 39. alleles         |
| 17. serology       | 41. phenotype       |

19. A  
21. radioimmunoassay (RIA)  
or enzyme-multiplied  
immunoassay technique  
(EMIT)  
23. 3
43. will  
45. AA; BB; AB  
47. acid phosphatase  
49. oligospermia  
51. True

### **Chapter 13**

1. gene  
3. polymer  
5. nucleotides  
7. double helix  
9. A-C-G-T  
11. Proteins  
13. True  
15. restriction enzymes  
17. repeating  
19. electrophoresis  
21. True
23. two  
25. STRs  
27. PCR  
29. capillary electrophoresis  
31. male  
33. True  
35. False  
37. False  
39. False  
41. two

### **Chapter 14**



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|-----------------------------|-----------------------------|
| 1. Alphonse Bertillon       | 21. do not have             |
| 3. Sir Edward Richard Henry | 23. 1/1                     |
| 5. is not                   | 25. True                    |
| 7. Fingerprints             | 27. Plastic                 |
| 9. dermal papillae          | 29. powder                  |
| 11. loops; whorls; arches   | 31. Iodine                  |
| 13. arch                    | 33. Physical Developer      |
| 15. type lines              | 35. Super Glue fuming       |
| 17. one                     | 37. alternate light sources |
| 19. plain whorl             | 39. pixels                  |

## Chapter 15

- |                          |                |
|--------------------------|----------------|
| 1. land                  | 17. True       |
| 3. class                 | 19. primer     |
| 5. comparison microscope | 21. False      |
| 7. sometimes             | 23. is not     |
| 9. gauge                 | 25. False      |
| 11. can                  | 27. tool mark  |
| 13. True                 | 29. individual |
| 15. 12; 18               |                |

## Chapter 16

1. questioned document
3. known, questioned
5. False
7. *Gilbert v. California*
9. individual
11. infrared
13. Indented
15. sound spectrograph
17. False

## Chapter 17

1. preservation; acquisition; extraction; interpretation
3. Software
5. system unit
7. False
9. CPU
11. network interface card (NIC)
13. sectors; clusters; tracks; cylinders
15. byte
17. forensic image
19. swap
21. latent
23. RAM, file

25. unallocated space

27. True

## **Chapter 18**

1. network

9. Internet protocol address

3. World Wide Web

11. cookie

5. True

13. RAM

7. E-mail

15. firewalls