Answers to Exercises

CHAPTER 1: PRELIMINARY STEPS IN RADIOGRAPHY

REVIEW

1. A radiographer is a radiologic technologist who administers ionizing radiation to perform radiographic procedures.
2. ALARA stands for "as low as reasonably achievable" and is the fundamental radiation protection protocol for radiographers.
3. a. American Registry of Radiologic Technologists
   b. American Society of Radiologic Technologists
4. The ASRT wrote and maintains the Radiography Practice Standards. They define the practice of radiography, describe necessary education and certification, and include the Radiographer Scope of Practice. In addition, the practice standards include Clinical Performance Standards, Quality Performance Standards, and Professional Performance Standards. The American Registry of Radiologic Technologists (ARRT) created and maintains the Standards of Ethics that apply to all radiologic technologists who are certified by the organization.
5. The radiographic table should be cleaned after each patient.
6. By following Standard Precautions and Transmission-based precautions
7. Washing the hands
8. Under
9. Disposable gloves
10. Place them in a puncture-proof container
11. Cystography, intravenous urography, spinal puncture, arthrography, angiography
12. False, to the side opposite of surgeon
13. Give an explanation of the procedure to be performed.
14. Four
15. The radiographer
16. Interpretation of images is outside of the scope of practice for radiographers. Requests for interpretations must be referred to a qualified physician, such as a radiologist.
17. Limited diet, laxatives, and enemas
18. False, starch is radiopaque.
19. To prevent confusing shadows (artifacts)
20. Dentures, removable bridgework, earrings, necklaces, hairpins, and eyeglasses
21. Smooth, involuntary (peristalsis); cardiac, involuntary (systole); and striated, voluntary
22. Peristalsis
23. Exposure time
24. Central nervous system
25. c, d, e, g
26. True
27. A device that receives the energy of the x-ray beam and forms the image of the body part
28. Solid-state digital detector, photostimulable storage phosphor image plate (IP), fluoroscopic image receptor (IR), and cassette with film.
29. Evaluate the radiograph
30. a. Without compensating filter
    b. With Ferlic wedge filter
31. milliamperage (mA), kilovolt peak (kVp), and exposure time (seconds)
32. b
33. b
34. a
35. a
36. a
37. b
38. a
39. b
40. a
41. b
42. b
43. a
44. attempt to explain the latest AAPM research
45. lengthwise, crosswise, and diagonal; lengthwise
46. collimate the exposure field
47. Increase the SID
48. To avoid the superimposition of overlying or underlying structures, to avoid superimposing a curved structure on itself, to project through angled joints, and to project through angled structures without foreshortening or elongation
49. SID (source-to-image receptor distance)
50. magnification, spatial resolution, and patient dose

51. 40 inches (102 cm); 44-48 inches (112-122 cm)
52. 72 inches (183 cm)
53. First, it minimizes the amount of radiation to the patient by restricting exposure to essential anatomy only. Second, it reduces the amount of scatter radiation that can reach the IR, which reduces the potential for a reduction in contrast resolution.
54. True
55. False. Shuttering gives only the displayed image the appearance of proper collimation and does *not* protect the patient from unnecessary radiation exposure. The use of shuttering in place of proper collimation is a violation of the ARRT Code of Ethics and a potential legal liability.
56. a, b, d
57. c
58. a
59. c
60. d
61. a
62. a
63. d
64. f
65. d
66. g
67. Refers to a position in which the patient is standing erect with the face and eyes directed forward, arms extended by the sides with the palms of the hands facing forward, heels together, and toes pointing anteriorly
68. Radiographs are usually oriented on the display monitor so that the person looking at the image sees the body part as though viewed facing the patient.
69. Image A
70. As though the viewer sees the patient from the perspective of the x-ray tube (display the image so that the side of the patient closer to the IR during the procedure is also the side of the image closer to the viewbox)
71. Image A
72. With the digits pointing upward and as viewed from the perspective of the x-ray tube
73. Image A
74. Image A
75. a, c, d, f
76. Cumulative time
77. Anteroposterior
78. Automatic exposure control
79. American Society of Radiologic Technologists
80. Image receptor
81. Computed radiography
82. Central ray
83. Milliampere-second
84. Digital radiography
85. Anatomically programmed radiography
86. American Registry of Radiologic Technologists
87. Anterior superior iliac spine
88. Body mass index
89. Radiographic and fluoroscopic table weight limits have doubled to 700 pounds. CT and MRI table weights and aperture openings have also increased.
90. Risk of injury to radiographers, other health care workers, and the patient
91. The thorax, stomach, and colon
92. a
93. 22-inches

CHAPTER 1: SELF-TEST: PRELIMINARY STEPS IN RADIOGRAPHY

1. b	8. d	15. d	22. d	29. d
2. a	9. b	16. c	23. d	30. d
3. a	10. d	17. c	24. c	31. a
4. b, c, d	11. c	18. c	25. c	32. b
5. b	12. c	19. c	26. a	33. b
6. a	13. b	20. b	27. a	34. a
7. a	14. c	21. a	28. b	35. c