

PRACTICE EXAM 5: ARRT RADIOGRAPHY SIMULATION (200 QUESTIONS)

This standalone practice exam contains 200 scored-style multiple-choice questions. Allow 3 hours 50 minutes. Select the single best answer for each item. This simulation follows the ARRT Radiography content specifications in effect through February 28, 2027: Patient Care 33, Safety 50, Image Production 51, and Procedures 66. Candidates testing on or after March 1, 2027 should also review the revised ARRT outline, whose domain distribution and terminology change.

1. Before beginning an examination, which action best verifies the correct patient?
 - A. Confirm only the room assignment
 - B. Ask a family member to identify the patient
 - C. Compare the patient with the schedule photograph
 - D. Use two independent patient identifiers
2. A competent adult refuses a medically necessary radiographic examination. What should the radiographer do first?
 - A. Respect the refusal and notify the responsible provider
 - B. Proceed because the examination was ordered
 - C. Ask security to restrain the patient
 - D. Obtain consent from the nearest relative
3. Which response best demonstrates therapeutic communication with an anxious patient?
 - A. Tell the patient there is nothing to fear
 - B. Invite the patient to describe specific concerns
 - C. Change the subject to avoid increasing anxiety
 - D. Promise that the procedure will be painless
4. Which practice is part of standard precautions for every patient?
 - A. Wear an N95 respirator for every interaction
 - B. Place every patient in airborne isolation
 - C. Perform hand hygiene at appropriate care moments
 - D. Use sterile gloves for all positioning tasks
5. A patient becomes pale and reports dizziness while standing for an upright chest image. What is the priority action?
 - A. Complete the exposure before moving the patient
 - B. Assist the patient to a safe seated or supine position
 - C. Ask the patient to take several deep breaths
 - D. Leave to obtain the patient's medical record
6. Which information belongs in an objective incident report after a patient fall?
 - A. An admission that the department caused the fall
 - B. Speculation about which employee was careless
 - C. Observed facts and actions taken after the event
 - D. A copy placed directly in the medical record

7. Which finding most strongly suggests an immediate contrast-media reaction requiring rapid assessment?
- A. Stridor with increasing respiratory difficulty
 - B. A brief metallic taste without other symptoms
 - C. A transient sensation of warmth
 - D. Mild anxiety before injection
8. When transferring a weak patient from wheelchair to table, what is the safest preliminary action?
- A. Pull the patient quickly by both arms
 - B. Leave the wheelchair angled away from the table
 - C. Ask the patient to stand before explaining the transfer
 - D. Lock the wheelchair and move footrests away
9. Which action best protects confidentiality when discussing a patient's imaging history?
- A. Speak privately only with personnel involved in care
 - B. Discuss the case in a public elevator
 - C. Share details with a curious coworker
 - D. Post a deidentified story with recognizable circumstances
10. A patient has a valid advance directive in the chart. What is the radiographer's appropriate role?
- A. Independently interpret all legal implications
 - B. Recognize it and promptly communicate relevant wishes
 - C. Ignore it unless a family member repeats it
 - D. Replace it with the radiographer's treatment preference
11. Which measure is most appropriate before moving a patient with an indwelling urinary catheter?
- A. Place the bag on the patient's abdomen
 - B. Disconnect the tubing for easier transfer
 - C. Clamp the catheter throughout the examination
 - D. Keep the drainage bag below bladder level
12. During a routine examination, before beginning an examination, which action best verifies the correct patient?
- A. Confirm only the room assignment
 - B. Ask a family member to identify the patient
 - C. Use two independent patient identifiers
 - D. Compare the patient with the schedule photograph
13. In an outpatient setting, a competent adult refuses a medically necessary radiographic examination. What should the radiographer do first?
- A. Proceed because the examination was ordered
 - B. Ask security to restrain the patient
 - C. Respect the refusal and notify the responsible provider
 - D. Obtain consent from the nearest relative

- 14.** For an adult patient, which response best demonstrates therapeutic communication with an anxious patient?
- A. Tell the patient there is nothing to fear
 - B. Change the subject to avoid increasing anxiety
 - C. Promise that the procedure will be painless
 - D. Invite the patient to describe specific concerns
- 15.** During image acquisition, which practice is part of standard precautions for every patient?
- A. Perform hand hygiene at appropriate care moments
 - B. Wear an N95 respirator for every interaction
 - C. Place every patient in airborne isolation
 - D. Use sterile gloves for all positioning tasks
- 16.** According to safe radiographic practice, a patient becomes pale and reports dizziness while standing for an upright chest image. What is the priority action?
- A. Complete the exposure before moving the patient
 - B. Assist the patient to a safe seated or supine position
 - C. Ask the patient to take several deep breaths
 - D. Leave to obtain the patient's medical record
- 17.** When preparing the room, which information belongs in an objective incident report after a patient fall?
- A. Observed facts and actions taken after the event
 - B. An admission that the department caused the fall
 - C. Speculation about which employee was careless
 - D. A copy placed directly in the medical record
- 18.** During a routine examination, which finding most strongly suggests an immediate contrast-media reaction requiring rapid assessment?
- A. A brief metallic taste without other symptoms
 - B. Stridor with increasing respiratory difficulty
 - C. A transient sensation of warmth
 - D. Mild anxiety before injection
- 19.** In an outpatient setting, when transferring a weak patient from wheelchair to table, what is the safest preliminary action?
- A. Pull the patient quickly by both arms
 - B. Leave the wheelchair angled away from the table
 - C. Lock the wheelchair and move footrests away
 - D. Ask the patient to stand before explaining the transfer
- 20.** For an adult patient, which action best protects confidentiality when discussing a patient's imaging history?
- A. Discuss the case in a public elevator
 - B. Share details with a curious coworker
 - C. Post a deidentified story with recognizable circumstances
 - D. Speak privately only with personnel involved in care

- 21.** During image acquisition, a patient has a valid advance directive in the chart. What is the radiographer's appropriate role?
- A. Independently interpret all legal implications
 - B. Recognize it and promptly communicate relevant wishes
 - C. Ignore it unless a family member repeats it
 - D. Replace it with the radiographer's treatment preference
- 22.** According to safe radiographic practice, which measure is most appropriate before moving a patient with an indwelling urinary catheter?
- A. Place the bag on the patient's abdomen
 - B. Disconnect the tubing for easier transfer
 - C. Clamp the catheter throughout the examination
 - D. Keep the drainage bag below bladder level
- 23.** During a routine examination, before beginning an examination, which action best verifies the correct patient?
- A. Confirm only the room assignment
 - B. Ask a family member to identify the patient
 - C. Use two independent patient identifiers
 - D. Compare the patient with the schedule photograph
- 24.** In an outpatient setting, a competent adult refuses a medically necessary radiographic examination. What should the radiographer do first?
- A. Respect the refusal and notify the responsible provider
 - B. Proceed because the examination was ordered
 - C. Ask security to restrain the patient
 - D. Obtain consent from the nearest relative
- 25.** For an adult patient, which response best demonstrates therapeutic communication with an anxious patient?
- A. Tell the patient there is nothing to fear
 - B. Change the subject to avoid increasing anxiety
 - C. Invite the patient to describe specific concerns
 - D. Promise that the procedure will be painless
- 26.** During image acquisition, which practice is part of standard precautions for every patient?
- A. Wear an N95 respirator for every interaction
 - B. Place every patient in airborne isolation
 - C. Use sterile gloves for all positioning tasks
 - D. Perform hand hygiene at appropriate care moments
- 27.** According to safe radiographic practice, a patient becomes pale and reports dizziness while standing for an upright chest image. What is the priority action?
- A. Complete the exposure before moving the patient
 - B. Assist the patient to a safe seated or supine position
 - C. Ask the patient to take several deep breaths
 - D. Leave to obtain the patient's medical record

- 28.** When preparing the room, which information belongs in an objective incident report after a patient fall?
- A. Observed facts and actions taken after the event
 - B. An admission that the department caused the fall
 - C. Speculation about which employee was careless
 - D. A copy placed directly in the medical record
- 29.** During a routine examination, which finding most strongly suggests an immediate contrast-media reaction requiring rapid assessment?
- A. A brief metallic taste without other symptoms
 - B. A transient sensation of warmth
 - C. Mild anxiety before injection
 - D. Stridor with increasing respiratory difficulty
- 30.** In an outpatient setting, when transferring a weak patient from wheelchair to table, what is the safest preliminary action?
- A. Pull the patient quickly by both arms
 - B. Leave the wheelchair angled away from the table
 - C. Lock the wheelchair and move footrests away
 - D. Ask the patient to stand before explaining the transfer
- 31.** For an adult patient, which action best protects confidentiality when discussing a patient's imaging history?
- A. Discuss the case in a public elevator
 - B. Speak privately only with personnel involved in care
 - C. Share details with a curious coworker
 - D. Post a deidentified story with recognizable circumstances
- 32.** During image acquisition, a patient has a valid advance directive in the chart. What is the radiographer's appropriate role?
- A. Recognize it and promptly communicate relevant wishes
 - B. Independently interpret all legal implications
 - C. Ignore it unless a family member repeats it
 - D. Replace it with the radiographer's treatment preference
- 33.** According to safe radiographic practice, which measure is most appropriate before moving a patient with an indwelling urinary catheter?
- A. Keep the drainage bag below bladder level
 - B. Place the bag on the patient's abdomen
 - C. Disconnect the tubing for easier transfer
 - D. Clamp the catheter throughout the examination
- 34.** Which principle directly reduces occupational radiation exposure during a mobile examination?
- A. Stand beside the tube housing during exposure
 - B. Increase field size to shorten positioning
 - C. Maximize distance from the x-ray source and patient
 - D. Hold the image receptor whenever possible

35. What is the primary purpose of radiographic beam collimation?
- A. Increase scatter reaching the detector
 - B. Limit irradiation to the anatomy of interest
 - C. Eliminate the need for exposure selection
 - D. Magnify the anatomy without distortion
36. Which effect is classified as stochastic rather than a tissue reaction?
- A. Skin erythema after a high dose
 - B. Temporary epilation after irradiation
 - C. Lens opacification above a threshold
 - D. Radiation-induced cancer
37. What happens to x-ray photon energy when tube potential is increased?
- A. Photon energy becomes independent of voltage
 - B. Average and maximum photon energies increase
 - C. Maximum energy decreases while quantity rises
 - D. Only filament temperature determines photon energy
38. Why is added filtration used in a diagnostic x-ray beam?
- A. Remove low-energy photons unlikely to reach the detector
 - B. Increase skin dose without changing quality
 - C. Create more low-energy characteristic photons
 - D. Replace the need for beam restriction
39. Which device monitors accumulated occupational exposure over a wear period?
- A. A daily detector calibration phantom
 - B. A lead blocker placed on the table
 - C. A personnel dosimeter assigned to the worker
 - D. A radiographic side marker
40. During fluoroscopy, where should the image receptor be positioned when practical?
- A. As far from the patient as possible
 - B. At the maximum source-to-skin distance only
 - C. Directly against the x-ray tube housing
 - D. As close to the patient as possible
41. Which interaction is the principal source of occupational scatter in diagnostic imaging?
- A. Pair production in the detector
 - B. Compton interaction within the patient
 - C. Photodisintegration in soft tissue
 - D. Coherent emission from the filament
42. What is the safest response when a pregnant patient requires a medically indicated radiograph?
- A. Automatically cancel every radiographic procedure
 - B. Double exposure factors to shorten the examination
 - C. Optimize the examination and avoid unnecessary repeats
 - D. Exclude the patient from shared decision-making

43. Which change most directly reduces dose-area product for the same projection?

- A. A larger exposed field
- B. A shorter source-to-image distance
- C. Removal of all beam filtration
- D. Tighter collimation to the required anatomy

44. What should a radiographer do with a damaged lead apron discovered during inspection?

- A. Remove it from service and follow department policy
- B. Continue using it until visible holes enlarge
- C. Fold it tightly and return it to storage
- D. Cover the defect with adhesive tape only

45. During a routine examination, which principle directly reduces occupational radiation exposure during a mobile examination?

- A. Stand beside the tube housing during exposure
- B. Increase field size to shorten positioning
- C. Maximize distance from the x-ray source and patient
- D. Hold the image receptor whenever possible

46. In an outpatient setting, what is the primary purpose of radiographic beam collimation?

- A. Increase scatter reaching the detector
- B. Eliminate the need for exposure selection
- C. Magnify the anatomy without distortion
- D. Limit irradiation to the anatomy of interest

47. For an adult patient, which effect is classified as stochastic rather than a tissue reaction?

- A. Skin erythema after a high dose
- B. Radiation-induced cancer
- C. Temporary epilation after irradiation
- D. Lens opacification above a threshold

48. During image acquisition, what happens to x-ray photon energy when tube potential is increased?

- A. Average and maximum photon energies increase
- B. Photon energy becomes independent of voltage
- C. Maximum energy decreases while quantity rises
- D. Only filament temperature determines photon energy

49. According to safe radiographic practice, why is added filtration used in a diagnostic x-ray beam?

- A. Increase skin dose without changing quality
- B. Create more low-energy characteristic photons
- C. Remove low-energy photons unlikely to reach the detector
- D. Replace the need for beam restriction

50. When preparing the room, which device monitors accumulated occupational exposure over a wear period?
- A. A daily detector calibration phantom
 - B. A personnel dosimeter assigned to the worker
 - C. A lead blocker placed on the table
 - D. A radiographic side marker
51. During a routine examination, during fluoroscopy, where should the image receptor be positioned when practical?
- A. As far from the patient as possible
 - B. At the maximum source-to-skin distance only
 - C. Directly against the x-ray tube housing
 - D. As close to the patient as possible
52. In an outpatient setting, which interaction is the principal source of occupational scatter in diagnostic imaging?
- A. Compton interaction within the patient
 - B. Pair production in the detector
 - C. Photodisintegration in soft tissue
 - D. Coherent emission from the filament
53. For an adult patient, what is the safest response when a pregnant patient requires a medically indicated radiograph?
- A. Automatically cancel every radiographic procedure
 - B. Double exposure factors to shorten the examination
 - C. Optimize the examination and avoid unnecessary repeats
 - D. Exclude the patient from shared decision-making
54. During image acquisition, which change most directly reduces dose-area product for the same projection?
- A. Tighter collimation to the required anatomy
 - B. A larger exposed field
 - C. A shorter source-to-image distance
 - D. Removal of all beam filtration
55. According to safe radiographic practice, what should a radiographer do with a damaged lead apron discovered during inspection?
- A. Continue using it until visible holes enlarge
 - B. Fold it tightly and return it to storage
 - C. Cover the defect with adhesive tape only
 - D. Remove it from service and follow department policy
56. During a routine examination, which principle directly reduces occupational radiation exposure during a mobile examination?
- A. Stand beside the tube housing during exposure
 - B. Maximize distance from the x-ray source and patient
 - C. Increase field size to shorten positioning
 - D. Hold the image receptor whenever possible

- 57.** In an outpatient setting, what is the primary purpose of radiographic beam collimation?
- A. Limit irradiation to the anatomy of interest
 - B. Increase scatter reaching the detector
 - C. Eliminate the need for exposure selection
 - D. Magnify the anatomy without distortion
- 58.** For an adult patient, which effect is classified as stochastic rather than a tissue reaction?
- A. Skin erythema after a high dose
 - B. Temporary epilation after irradiation
 - C. Lens opacification above a threshold
 - D. Radiation-induced cancer
- 59.** During image acquisition, what happens to x-ray photon energy when tube potential is increased?
- A. Photon energy becomes independent of voltage
 - B. Maximum energy decreases while quantity rises
 - C. Average and maximum photon energies increase
 - D. Only filament temperature determines photon energy
- 60.** According to safe radiographic practice, why is added filtration used in a diagnostic x-ray beam?
- A. Increase skin dose without changing quality
 - B. Remove low-energy photons unlikely to reach the detector
 - C. Create more low-energy characteristic photons
 - D. Replace the need for beam restriction
- 61.** When preparing the room, which device monitors accumulated occupational exposure over a wear period?
- A. A daily detector calibration phantom
 - B. A lead blocker placed on the table
 - C. A radiographic side marker
 - D. A personnel dosimeter assigned to the worker
- 62.** During a routine examination, during fluoroscopy, where should the image receptor be positioned when practical?
- A. As far from the patient as possible
 - B. As close to the patient as possible
 - C. At the maximum source-to-skin distance only
 - D. Directly against the x-ray tube housing
- 63.** In an outpatient setting, which interaction is the principal source of occupational scatter in diagnostic imaging?
- A. Pair production in the detector
 - B. Photodisintegration in soft tissue
 - C. Compton interaction within the patient
 - D. Coherent emission from the filament

64. For an adult patient, what is the safest response when a pregnant patient requires a medically indicated radiograph?

- A. Optimize the examination and avoid unnecessary repeats
- B. Automatically cancel every radiographic procedure
- C. Double exposure factors to shorten the examination
- D. Exclude the patient from shared decision-making

65. During image acquisition, which change most directly reduces dose-area product for the same projection?

- A. A larger exposed field
- B. A shorter source-to-image distance
- C. Tighter collimation to the required anatomy
- D. Removal of all beam filtration

66. According to safe radiographic practice, what should a radiographer do with a damaged lead apron discovered during inspection?

- A. Remove it from service and follow department policy
- B. Continue using it until visible holes enlarge
- C. Fold it tightly and return it to storage
- D. Cover the defect with adhesive tape only

67. During a routine examination, which principle directly reduces occupational radiation exposure during a mobile examination?

- A. Stand beside the tube housing during exposure
- B. Maximize distance from the x-ray source and patient
- C. Increase field size to shorten positioning
- D. Hold the image receptor whenever possible

68. In an outpatient setting, what is the primary purpose of radiographic beam collimation?

- A. Increase scatter reaching the detector
- B. Eliminate the need for exposure selection
- C. Magnify the anatomy without distortion
- D. Limit irradiation to the anatomy of interest

69. For an adult patient, which effect is classified as stochastic rather than a tissue reaction?

- A. Skin erythema after a high dose
- B. Temporary epilation after irradiation
- C. Radiation-induced cancer
- D. Lens opacification above a threshold

70. During image acquisition, what happens to x-ray photon energy when tube potential is increased?

- A. Photon energy becomes independent of voltage
- B. Maximum energy decreases while quantity rises
- C. Only filament temperature determines photon energy
- D. Average and maximum photon energies increase

71. According to safe radiographic practice, why is added filtration used in a diagnostic x-ray beam?
- A. Remove low-energy photons unlikely to reach the detector
 - B. Increase skin dose without changing quality
 - C. Create more low-energy characteristic photons
 - D. Replace the need for beam restriction
72. When preparing the room, which device monitors accumulated occupational exposure over a wear period?
- A. A daily detector calibration phantom
 - B. A personnel dosimeter assigned to the worker
 - C. A lead blocker placed on the table
 - D. A radiographic side marker
73. During a routine examination, during fluoroscopy, where should the image receptor be positioned when practical?
- A. As far from the patient as possible
 - B. As close to the patient as possible
 - C. At the maximum source-to-skin distance only
 - D. Directly against the x-ray tube housing
74. In an outpatient setting, which interaction is the principal source of occupational scatter in diagnostic imaging?
- A. Pair production in the detector
 - B. Photodisintegration in soft tissue
 - C. Coherent emission from the filament
 - D. Compton interaction within the patient
75. For an adult patient, what is the safest response when a pregnant patient requires a medically indicated radiograph?
- A. Optimize the examination and avoid unnecessary repeats
 - B. Automatically cancel every radiographic procedure
 - C. Double exposure factors to shorten the examination
 - D. Exclude the patient from shared decision-making
76. During image acquisition, which change most directly reduces dose-area product for the same projection?
- A. A larger exposed field
 - B. A shorter source-to-image distance
 - C. Tighter collimation to the required anatomy
 - D. Removal of all beam filtration
77. According to safe radiographic practice, what should a radiographer do with a damaged lead apron discovered during inspection?
- A. Continue using it until visible holes enlarge
 - B. Fold it tightly and return it to storage
 - C. Remove it from service and follow department policy
 - D. Cover the defect with adhesive tape only

78. During a routine examination, which principle directly reduces occupational radiation exposure during a mobile examination?

- A. Stand beside the tube housing during exposure
- B. Maximize distance from the x-ray source and patient
- C. Increase field size to shorten positioning
- D. Hold the image receptor whenever possible

79. In an outpatient setting, what is the primary purpose of radiographic beam collimation?

- A. Increase scatter reaching the detector
- B. Eliminate the need for exposure selection
- C. Magnify the anatomy without distortion
- D. Limit irradiation to the anatomy of interest

80. For an adult patient, which effect is classified as stochastic rather than a tissue reaction?

- A. Radiation-induced cancer
- B. Skin erythema after a high dose
- C. Temporary epilation after irradiation
- D. Lens opacification above a threshold

81. During image acquisition, what happens to x-ray photon energy when tube potential is increased?

- A. Photon energy becomes independent of voltage
- B. Maximum energy decreases while quantity rises
- C. Average and maximum photon energies increase
- D. Only filament temperature determines photon energy

82. According to safe radiographic practice, why is added filtration used in a diagnostic x-ray beam?

- A. Increase skin dose without changing quality
- B. Create more low-energy characteristic photons
- C. Replace the need for beam restriction
- D. Remove low-energy photons unlikely to reach the detector

83. When preparing the room, which device monitors accumulated occupational exposure over a wear period?

- A. A daily detector calibration phantom
- B. A personnel dosimeter assigned to the worker
- C. A lead blocker placed on the table
- D. A radiographic side marker

84. Which exposure factor primarily controls x-ray photon quantity when other factors remain constant?

- A. Milliampere-seconds
- B. Source-to-image distance alone
- C. Focal-spot size alone
- D. Anode angle alone

85. What is the expected image effect of increasing object-to-image distance?

- A. Less magnification and greater detail
- B. Greater magnification and reduced recorded detail
- C. No geometric change at any distance
- D. Greater contrast without size change

86. Which action best reduces shape distortion in a routine projection?

- A. Align the tube, part, and receptor as prescribed
- B. Increase object-to-image distance
- C. Use the largest available focal spot
- D. Angle the part without adjusting the central ray

87. What is the main purpose of an antiscatter grid?

- A. Increase the number of primary photons produced
- B. Prevent all motion during exposure
- C. Absorb scatter before it reaches the detector
- D. Correct patient identification errors

88. Which digital image indicator most directly reflects detector exposure?

- A. The displayed monitor brightness alone
- B. The patient's body temperature
- C. The anatomical side marker
- D. The manufacturer's exposure indicator

89. What is exposure creep in digital radiography?

- A. A sudden loss of all detector pixels
- B. A decrease in field size from collimation
- C. A gradual upward drift in technique and patient dose
- D. A fixed error in patient identification

90. Which quality-control test evaluates spatial resolution?

- A. Imaging a high-contrast line-pair pattern
- B. Measuring room illumination only
- C. Reviewing patient appointment times
- D. Counting unused contrast syringes

91. What is the primary cause of quantum noise in a radiographic image?

- A. Excessive monitor brightness
- B. Too few detected x-ray photons
- C. Incorrect patient name entry
- D. Use of an anatomical marker

92. Which adjustment is most appropriate when voluntary motion caused image blur?

- A. Increase object-to-image distance
- B. Use a slower exposure time
- C. Remove patient support devices
- D. Improve communication and shorten exposure time

93. What does window width primarily control on a displayed digital image?

- A. The physical focal-spot dimension
- B. The range of gray shades and displayed contrast
- C. The amount of beam filtration
- D. The patient's absorbed dose after exposure

94. Why should rejected-image analysis be performed regularly?

- A. Identify repeat patterns and target corrective action
- B. Justify routinely repeating acceptable images
- C. Replace all preventive maintenance testing
- D. Eliminate the need for staff education

95. During a routine examination, which exposure factor primarily controls x-ray photon quantity when other factors remain constant?

- A. Source-to-image distance alone
- B. Focal-spot size alone
- C. Milliampere-seconds
- D. Anode angle alone

96. In an outpatient setting, what is the expected image effect of increasing object-to-image distance?

- A. Less magnification and greater detail
- B. No geometric change at any distance
- C. Greater contrast without size change
- D. Greater magnification and reduced recorded detail

97. For an adult patient, which action best reduces shape distortion in a routine projection?

- A. Align the tube, part, and receptor as prescribed
- B. Increase object-to-image distance
- C. Use the largest available focal spot
- D. Angle the part without adjusting the central ray

98. During image acquisition, what is the main purpose of an antiscatter grid?

- A. Increase the number of primary photons produced
- B. Absorb scatter before it reaches the detector
- C. Prevent all motion during exposure
- D. Correct patient identification errors

99. According to safe radiographic practice, which digital image indicator most directly reflects detector exposure?

- A. The displayed monitor brightness alone
- B. The patient's body temperature
- C. The manufacturer's exposure indicator
- D. The anatomical side marker

100. When preparing the room, what is exposure creep in digital radiography?

- A. A sudden loss of all detector pixels
- B. A decrease in field size from collimation
- C. A fixed error in patient identification
- D. A gradual upward drift in technique and patient dose

101. During a routine examination, which quality-control test evaluates spatial resolution?

- A. Measuring room illumination only
- B. Imaging a high-contrast line-pair pattern
- C. Reviewing patient appointment times
- D. Counting unused contrast syringes

102. In an outpatient setting, what is the primary cause of quantum noise in a radiographic image?

- A. Excessive monitor brightness
- B. Incorrect patient name entry
- C. Use of an anatomical marker
- D. Too few detected x-ray photons

103. For an adult patient, which adjustment is most appropriate when voluntary motion caused image blur?

- A. Increase object-to-image distance
- B. Use a slower exposure time
- C. Improve communication and shorten exposure time
- D. Remove patient support devices

104. During image acquisition, what does window width primarily control on a displayed digital image?

- A. The range of gray shades and displayed contrast
- B. The physical focal-spot dimension
- C. The amount of beam filtration
- D. The patient's absorbed dose after exposure

105. According to safe radiographic practice, why should rejected-image analysis be performed regularly?

- A. Justify routinely repeating acceptable images
- B. Replace all preventive maintenance testing
- C. Identify repeat patterns and target corrective action
- D. Eliminate the need for staff education

106. During a routine examination, which exposure factor primarily controls x-ray photon quantity when other factors remain constant?

- A. Milliampere-seconds
- B. Source-to-image distance alone
- C. Focal-spot size alone
- D. Anode angle alone

- 107.** In an outpatient setting, what is the expected image effect of increasing object-to-image distance?
- A. Less magnification and greater detail
 - B. Greater magnification and reduced recorded detail
 - C. No geometric change at any distance
 - D. Greater contrast without size change
- 108.** For an adult patient, which action best reduces shape distortion in a routine projection?
- A. Increase object-to-image distance
 - B. Use the largest available focal spot
 - C. Angle the part without adjusting the central ray
 - D. Align the tube, part, and receptor as prescribed
- 109.** During image acquisition, what is the main purpose of an antiscatter grid?
- A. Increase the number of primary photons produced
 - B. Prevent all motion during exposure
 - C. Absorb scatter before it reaches the detector
 - D. Correct patient identification errors
- 110.** According to safe radiographic practice, which digital image indicator most directly reflects detector exposure?
- A. The displayed monitor brightness alone
 - B. The manufacturer's exposure indicator
 - C. The patient's body temperature
 - D. The anatomical side marker
- 111.** When preparing the room, what is exposure creep in digital radiography?
- A. A sudden loss of all detector pixels
 - B. A decrease in field size from collimation
 - C. A fixed error in patient identification
 - D. A gradual upward drift in technique and patient dose
- 112.** During a routine examination, which quality-control test evaluates spatial resolution?
- A. Imaging a high-contrast line-pair pattern
 - B. Measuring room illumination only
 - C. Reviewing patient appointment times
 - D. Counting unused contrast syringes
- 113.** In an outpatient setting, what is the primary cause of quantum noise in a radiographic image?
- A. Excessive monitor brightness
 - B. Incorrect patient name entry
 - C. Use of an anatomical marker
 - D. Too few detected x-ray photons
- 114.** For an adult patient, which adjustment is most appropriate when voluntary motion caused image blur?
- A. Improve communication and shorten exposure time
 - B. Increase object-to-image distance
 - C. Use a slower exposure time
 - D. Remove patient support devices

115. During image acquisition, what does window width primarily control on a displayed digital image?

- A. The physical focal-spot dimension
- B. The range of gray shades and displayed contrast
- C. The amount of beam filtration
- D. The patient's absorbed dose after exposure

116. According to safe radiographic practice, why should rejected-image analysis be performed regularly?

- A. Justify routinely repeating acceptable images
- B. Replace all preventive maintenance testing
- C. Identify repeat patterns and target corrective action
- D. Eliminate the need for staff education

117. During a routine examination, which exposure factor primarily controls x-ray photon quantity when other factors remain constant?

- A. Source-to-image distance alone
- B. Focal-spot size alone
- C. Milliampere-seconds
- D. Anode angle alone

118. In an outpatient setting, what is the expected image effect of increasing object-to-image distance?

- A. Greater magnification and reduced recorded detail
- B. Less magnification and greater detail
- C. No geometric change at any distance
- D. Greater contrast without size change

119. For an adult patient, which action best reduces shape distortion in a routine projection?

- A. Increase object-to-image distance
- B. Align the tube, part, and receptor as prescribed
- C. Use the largest available focal spot
- D. Angle the part without adjusting the central ray

120. During image acquisition, what is the main purpose of an antiscatter grid?

- A. Increase the number of primary photons produced
- B. Prevent all motion during exposure
- C. Correct patient identification errors
- D. Absorb scatter before it reaches the detector

121. According to safe radiographic practice, which digital image indicator most directly reflects detector exposure?

- A. The displayed monitor brightness alone
- B. The manufacturer's exposure indicator
- C. The patient's body temperature
- D. The anatomical side marker

122. When preparing the room, what is exposure creep in digital radiography?

- A. A sudden loss of all detector pixels
- B. A decrease in field size from collimation
- C. A gradual upward drift in technique and patient dose
- D. A fixed error in patient identification

123. During a routine examination, which quality-control test evaluates spatial resolution?

- A. Measuring room illumination only
- B. Reviewing patient appointment times
- C. Counting unused contrast syringes
- D. Imaging a high-contrast line-pair pattern

124. In an outpatient setting, what is the primary cause of quantum noise in a radiographic image?

- A. Too few detected x-ray photons
- B. Excessive monitor brightness
- C. Incorrect patient name entry
- D. Use of an anatomical marker

125. For an adult patient, which adjustment is most appropriate when voluntary motion caused image blur?

- A. Improve communication and shorten exposure time
- B. Increase object-to-image distance
- C. Use a slower exposure time
- D. Remove patient support devices

126. During image acquisition, what does window width primarily control on a displayed digital image?

- A. The physical focal-spot dimension
- B. The amount of beam filtration
- C. The range of gray shades and displayed contrast
- D. The patient's absorbed dose after exposure

127. According to safe radiographic practice, why should rejected-image analysis be performed regularly?

- A. Justify routinely repeating acceptable images
- B. Replace all preventive maintenance testing
- C. Eliminate the need for staff education
- D. Identify repeat patterns and target corrective action

128. During a routine examination, which exposure factor primarily controls x-ray photon quantity when other factors remain constant?

- A. Source-to-image distance alone
- B. Milliampere-seconds
- C. Focal-spot size alone
- D. Anode angle alone

- 129.** In an outpatient setting, what is the expected image effect of increasing object-to-image distance?
- A. Greater magnification and reduced recorded detail
 - B. Less magnification and greater detail
 - C. No geometric change at any distance
 - D. Greater contrast without size change
- 130.** For an adult patient, which action best reduces shape distortion in a routine projection?
- A. Increase object-to-image distance
 - B. Align the tube, part, and receptor as prescribed
 - C. Use the largest available focal spot
 - D. Angle the part without adjusting the central ray
- 131.** During image acquisition, what is the main purpose of an antiscatter grid?
- A. Increase the number of primary photons produced
 - B. Prevent all motion during exposure
 - C. Correct patient identification errors
 - D. Absorb scatter before it reaches the detector
- 132.** According to safe radiographic practice, which digital image indicator most directly reflects detector exposure?
- A. The displayed monitor brightness alone
 - B. The patient's body temperature
 - C. The manufacturer's exposure indicator
 - D. The anatomical side marker
- 133.** When preparing the room, what is exposure creep in digital radiography?
- A. A sudden loss of all detector pixels
 - B. A decrease in field size from collimation
 - C. A gradual upward drift in technique and patient dose
 - D. A fixed error in patient identification
- 134.** During a routine examination, which quality-control test evaluates spatial resolution?
- A. Measuring room illumination only
 - B. Imaging a high-contrast line-pair pattern
 - C. Reviewing patient appointment times
 - D. Counting unused contrast syringes
- 135.** For a routine PA chest projection, where should the shoulders be positioned?
- A. Rolled forward to move the scapulae laterally
 - B. Elevated to superimpose the clavicles
 - C. Rotated so one side is farther from the receptor
 - D. Pulled backward to cover the upper lungs
- 136.** Which breathing instruction is generally used for an upright PA chest image?
- A. Expose during quiet expiration
 - B. Suspend immediately after swallowing
 - C. Continue shallow breathing throughout exposure
 - D. Expose after the second full inspiration

137. For an AP axial cervical spine projection, how is the central ray commonly directed?

- A. Caudad through the upper thorax
- B. Horizontally through the iliac crest
- C. Cephalad through the midcervical region
- D. Perpendicular through the distal femur

138. Which projection best demonstrates an open glenohumeral joint space when the patient can rotate?

- A. PA oblique hand projection
- B. AP axial clavicle projection
- C. Lateral sternum projection
- D. AP oblique Grashey projection

139. For a true lateral knee, which relationship should be demonstrated?

- A. Femoral condyles nearly superimposed
- B. Patella entirely medial to the femur
- C. Tibial plateau perpendicular to the receptor
- D. Fibular head completely free of the tibia

140. Which position is used to demonstrate an air-fluid level in the abdomen when the patient cannot stand?

- A. Supine abdomen with a vertical beam
- B. Left lateral decubitus with a horizontal beam
- C. Right lateral decubitus after expiration
- D. Prone abdomen with an angled beam

141. For an AP pelvis, how are the lower limbs positioned when trauma is not suspected?

- A. Externally rotated to show lesser trochanters
- B. Internally rotated to place femoral necks in profile
- C. Flexed sharply to widen the pelvic inlet
- D. Crossed to superimpose both femoral heads

142. Which projection is commonly obtained to evaluate the scaphoid with reduced superimposition?

- A. AP forearm with elbow flexion
- B. Lateral humerus with external rotation
- C. PA wrist with ulnar deviation
- D. Tangential patella with knee flexion

143. What is the purpose of using a horizontal beam for a cross-table lateral hip?

- A. Force the femur into internal rotation
- B. Magnify both hips equally
- C. Eliminate the need for receptor placement
- D. Demonstrate the hip without moving the injured limb

144. Which anatomy should be included on a routine AP lumbar spine image?

- A. Lumbar vertebrae and adjacent sacral region
- B. Only the thoracic vertebrae
- C. The entire skull and mandible
- D. Only the distal coccyx

145. For a lateral forearm, how should the elbow generally be positioned?

- A. Fully extended with the hand pronated
- B. Hyperextended with the wrist oblique
- C. Flexed about ninety degrees with the limb lateral
- D. Abducted above the head with the palm down

146. During a routine examination, for a routine PA chest projection, where should the shoulders be positioned?

- A. Rolled forward to move the scapulae laterally
- B. Elevated to superimpose the clavicles
- C. Rotated so one side is farther from the receptor
- D. Pulled backward to cover the upper lungs

147. In an outpatient setting, which breathing instruction is generally used for an upright PA chest image?

- A. Expose during quiet expiration
- B. Suspend immediately after swallowing
- C. Continue shallow breathing throughout exposure
- D. Expose after the second full inspiration

148. For an adult patient, for an AP axial cervical spine projection, how is the central ray commonly directed?

- A. Caudad through the upper thorax
- B. Cephalad through the midcervical region
- C. Horizontally through the iliac crest
- D. Perpendicular through the distal femur

149. During image acquisition, which projection best demonstrates an open glenohumeral joint space when the patient can rotate?

- A. PA oblique hand projection
- B. AP axial clavicle projection
- C. Lateral sternum projection
- D. AP oblique Grashey projection

150. According to safe radiographic practice, for a true lateral knee, which relationship should be demonstrated?

- A. Patella entirely medial to the femur
- B. Tibial plateau perpendicular to the receptor
- C. Femoral condyles nearly superimposed
- D. Fibular head completely free of the tibia

151. When preparing the room, which position is used to demonstrate an air-fluid level in the abdomen when the patient cannot stand?

- A. Left lateral decubitus with a horizontal beam
- B. Supine abdomen with a vertical beam
- C. Right lateral decubitus after expiration
- D. Prone abdomen with an angled beam

152. During a routine examination, for an AP pelvis, how are the lower limbs positioned when trauma is not suspected?

- A. Externally rotated to show lesser trochanters
- B. Internally rotated to place femoral necks in profile
- C. Flexed sharply to widen the pelvic inlet
- D. Crossed to superimpose both femoral heads

153. In an outpatient setting, which projection is commonly obtained to evaluate the scaphoid with reduced superimposition?

- A. PA wrist with ulnar deviation
- B. AP forearm with elbow flexion
- C. Lateral humerus with external rotation
- D. Tangential patella with knee flexion

154. For an adult patient, what is the purpose of using a horizontal beam for a cross-table lateral hip?

- A. Force the femur into internal rotation
- B. Magnify both hips equally
- C. Demonstrate the hip without moving the injured limb
- D. Eliminate the need for receptor placement

155. During image acquisition, which anatomy should be included on a routine AP lumbar spine image?

- A. Only the thoracic vertebrae
- B. Lumbar vertebrae and adjacent sacral region
- C. The entire skull and mandible
- D. Only the distal coccyx

156. According to safe radiographic practice, for a lateral forearm, how should the elbow generally be positioned?

- A. Fully extended with the hand pronated
- B. Hyperextended with the wrist oblique
- C. Abducted above the head with the palm down
- D. Flexed about ninety degrees with the limb lateral

157. During a routine examination, for a routine PA chest projection, where should the shoulders be positioned?

- A. Elevated to superimpose the clavicles
- B. Rolled forward to move the scapulae laterally
- C. Rotated so one side is farther from the receptor
- D. Pulled backward to cover the upper lungs

158. In an outpatient setting, which breathing instruction is generally used for an upright PA chest image?

- A. Expose during quiet expiration
- B. Suspend immediately after swallowing
- C. Continue shallow breathing throughout exposure
- D. Expose after the second full inspiration

159. For an adult patient, for an AP axial cervical spine projection, how is the central ray commonly directed?

- A. Caudad through the upper thorax
- B. Horizontally through the iliac crest
- C. Cephalad through the midcervical region
- D. Perpendicular through the distal femur

160. During image acquisition, which projection best demonstrates an open glenohumeral joint space when the patient can rotate?

- A. AP oblique Grashey projection
- B. PA oblique hand projection
- C. AP axial clavicle projection
- D. Lateral sternum projection

161. According to safe radiographic practice, for a true lateral knee, which relationship should be demonstrated?

- A. Femoral condyles nearly superimposed
- B. Patella entirely medial to the femur
- C. Tibial plateau perpendicular to the receptor
- D. Fibular head completely free of the tibia

162. When preparing the room, which position is used to demonstrate an air-fluid level in the abdomen when the patient cannot stand?

- A. Supine abdomen with a vertical beam
- B. Right lateral decubitus after expiration
- C. Left lateral decubitus with a horizontal beam
- D. Prone abdomen with an angled beam

163. During a routine examination, for an AP pelvis, how are the lower limbs positioned when trauma is not suspected?

- A. Externally rotated to show lesser trochanters
- B. Flexed sharply to widen the pelvic inlet
- C. Crossed to superimpose both femoral heads
- D. Internally rotated to place femoral necks in profile

164. In an outpatient setting, which projection is commonly obtained to evaluate the scaphoid with reduced superimposition?

- A. AP forearm with elbow flexion
- B. PA wrist with ulnar deviation
- C. Lateral humerus with external rotation
- D. Tangential patella with knee flexion

165. For an adult patient, what is the purpose of using a horizontal beam for a cross-table lateral hip?

- A. Force the femur into internal rotation
- B. Magnify both hips equally
- C. Eliminate the need for receptor placement
- D. Demonstrate the hip without moving the injured limb

166. During image acquisition, which anatomy should be included on a routine AP lumbar spine image?

- A. Only the thoracic vertebrae
- B. Lumbar vertebrae and adjacent sacral region
- C. The entire skull and mandible
- D. Only the distal coccyx

167. According to safe radiographic practice, for a lateral forearm, how should the elbow generally be positioned?

- A. Fully extended with the hand pronated
- B. Hyperextended with the wrist oblique
- C. Flexed about ninety degrees with the limb lateral
- D. Abducted above the head with the palm down

168. During a routine examination, for a routine PA chest projection, where should the shoulders be positioned?

- A. Rolled forward to move the scapulae laterally
- B. Elevated to superimpose the clavicles
- C. Rotated so one side is farther from the receptor
- D. Pulled backward to cover the upper lungs

169. In an outpatient setting, which breathing instruction is generally used for an upright PA chest image?

- A. Expose during quiet expiration
- B. Expose after the second full inspiration
- C. Suspend immediately after swallowing
- D. Continue shallow breathing throughout exposure

170. For an adult patient, for an AP axial cervical spine projection, how is the central ray commonly directed?

- A. Cephalad through the midcervical region
- B. Caudad through the upper thorax
- C. Horizontally through the iliac crest
- D. Perpendicular through the distal femur

171. During image acquisition, which projection best demonstrates an open glenohumeral joint space when the patient can rotate?

- A. PA oblique hand projection
- B. AP axial clavicle projection
- C. Lateral sternum projection
- D. AP oblique Grashey projection

172. According to safe radiographic practice, for a true lateral knee, which relationship should be demonstrated?

- A. Patella entirely medial to the femur
- B. Tibial plateau perpendicular to the receptor
- C. Femoral condyles nearly superimposed
- D. Fibular head completely free of the tibia

173. When preparing the room, which position is used to demonstrate an air-fluid level in the abdomen when the patient cannot stand?

- A. Supine abdomen with a vertical beam
- B. Right lateral decubitus after expiration
- C. Prone abdomen with an angled beam
- D. Left lateral decubitus with a horizontal beam

174. During a routine examination, for an AP pelvis, how are the lower limbs positioned when trauma is not suspected?

- A. Externally rotated to show lesser trochanters
- B. Flexed sharply to widen the pelvic inlet
- C. Internally rotated to place femoral necks in profile
- D. Crossed to superimpose both femoral heads

175. In an outpatient setting, which projection is commonly obtained to evaluate the scaphoid with reduced superimposition?

- A. PA wrist with ulnar deviation
- B. AP forearm with elbow flexion
- C. Lateral humerus with external rotation
- D. Tangential patella with knee flexion

176. For an adult patient, what is the purpose of using a horizontal beam for a cross-table lateral hip?

- A. Force the femur into internal rotation
- B. Demonstrate the hip without moving the injured limb
- C. Magnify both hips equally
- D. Eliminate the need for receptor placement

177. During image acquisition, which anatomy should be included on a routine AP lumbar spine image?

- A. Only the thoracic vertebrae
- B. Lumbar vertebrae and adjacent sacral region
- C. The entire skull and mandible
- D. Only the distal coccyx

178. According to safe radiographic practice, for a lateral forearm, how should the elbow generally be positioned?

- A. Flexed about ninety degrees with the limb lateral
- B. Fully extended with the hand pronated
- C. Hyperextended with the wrist oblique
- D. Abducted above the head with the palm down

179. During a routine examination, for a routine PA chest projection, where should the shoulders be positioned?

- A. Elevated to superimpose the clavicles
- B. Rotated so one side is farther from the receptor
- C. Pulled backward to cover the upper lungs
- D. Rolled forward to move the scapulae laterally

180. In an outpatient setting, which breathing instruction is generally used for an upright PA chest image?

- A. Expose during quiet expiration
- B. Suspend immediately after swallowing
- C. Expose after the second full inspiration
- D. Continue shallow breathing throughout exposure

181. For an adult patient, for an AP axial cervical spine projection, how is the central ray commonly directed?

- A. Caudad through the upper thorax
- B. Cephalad through the midcervical region
- C. Horizontally through the iliac crest
- D. Perpendicular through the distal femur

182. During image acquisition, which projection best demonstrates an open glenohumeral joint space when the patient can rotate?

- A. PA oblique hand projection
- B. AP axial clavicle projection
- C. Lateral sternum projection
- D. AP oblique Grashey projection

183. According to safe radiographic practice, for a true lateral knee, which relationship should be demonstrated?

- A. Femoral condyles nearly superimposed
- B. Patella entirely medial to the femur
- C. Tibial plateau perpendicular to the receptor
- D. Fibular head completely free of the tibia

184. When preparing the room, which position is used to demonstrate an air-fluid level in the abdomen when the patient cannot stand?

- A. Supine abdomen with a vertical beam
- B. Right lateral decubitus after expiration
- C. Left lateral decubitus with a horizontal beam
- D. Prone abdomen with an angled beam

185. During a routine examination, for an AP pelvis, how are the lower limbs positioned when trauma is not suspected?

- A. Externally rotated to show lesser trochanters
- B. Flexed sharply to widen the pelvic inlet
- C. Internally rotated to place femoral necks in profile
- D. Crossed to superimpose both femoral heads

186. In an outpatient setting, which projection is commonly obtained to evaluate the scaphoid with reduced superimposition?

- A. AP forearm with elbow flexion
- B. PA wrist with ulnar deviation
- C. Lateral humerus with external rotation
- D. Tangential patella with knee flexion

187. For an adult patient, what is the purpose of using a horizontal beam for a cross-table lateral hip?

- A. Force the femur into internal rotation
- B. Magnify both hips equally
- C. Eliminate the need for receptor placement
- D. Demonstrate the hip without moving the injured limb

188. During image acquisition, which anatomy should be included on a routine AP lumbar spine image?

- A. Lumbar vertebrae and adjacent sacral region
- B. Only the thoracic vertebrae
- C. The entire skull and mandible
- D. Only the distal coccyx

189. According to safe radiographic practice, for a lateral forearm, how should the elbow generally be positioned?

- A. Fully extended with the hand pronated
- B. Hyperextended with the wrist oblique
- C. Flexed about ninety degrees with the limb lateral
- D. Abducted above the head with the palm down

190. During a routine examination, for a routine PA chest projection, where should the shoulders be positioned?

- A. Elevated to superimpose the clavicles
- B. Rolled forward to move the scapulae laterally
- C. Rotated so one side is farther from the receptor
- D. Pulled backward to cover the upper lungs

191. In an outpatient setting, which breathing instruction is generally used for an upright PA chest image?

- A. Expose during quiet expiration
- B. Suspend immediately after swallowing
- C. Continue shallow breathing throughout exposure
- D. Expose after the second full inspiration

192. For an adult patient, for an AP axial cervical spine projection, how is the central ray commonly directed?

- A. Caudad through the upper thorax
- B. Horizontally through the iliac crest
- C. Cephalad through the midcervical region
- D. Perpendicular through the distal femur

193. During image acquisition, which projection best demonstrates an open glenohumeral joint space when the patient can rotate?

- A. AP oblique Grashey projection
- B. PA oblique hand projection
- C. AP axial clavicle projection
- D. Lateral sternum projection

194. According to safe radiographic practice, for a true lateral knee, which relationship should be demonstrated?

- A. Patella entirely medial to the femur
- B. Femoral condyles nearly superimposed
- C. Tibial plateau perpendicular to the receptor
- D. Fibular head completely free of the tibia

195. When preparing the room, which position is used to demonstrate an air-fluid level in the abdomen when the patient cannot stand?

- A. Supine abdomen with a vertical beam
- B. Right lateral decubitus after expiration
- C. Prone abdomen with an angled beam
- D. Left lateral decubitus with a horizontal beam

196. During a routine examination, for an AP pelvis, how are the lower limbs positioned when trauma is not suspected?

- A. Internally rotated to place femoral necks in profile
- B. Externally rotated to show lesser trochanters
- C. Flexed sharply to widen the pelvic inlet
- D. Crossed to superimpose both femoral heads

197. In an outpatient setting, which projection is commonly obtained to evaluate the scaphoid with reduced superimposition?

- A. PA wrist with ulnar deviation
- B. AP forearm with elbow flexion
- C. Lateral humerus with external rotation
- D. Tangential patella with knee flexion

198. For an adult patient, what is the purpose of using a horizontal beam for a cross-table lateral hip?

- A. Force the femur into internal rotation
- B. Magnify both hips equally
- C. Eliminate the need for receptor placement
- D. Demonstrate the hip without moving the injured limb

199. During image acquisition, which anatomy should be included on a routine AP lumbar spine image?

- A. Only the thoracic vertebrae
- B. Lumbar vertebrae and adjacent sacral region
- C. The entire skull and mandible
- D. Only the distal coccyx

200. According to safe radiographic practice, for a lateral forearm, how should the elbow generally be positioned?

- A. Fully extended with the hand pronated
- B. Hyperextended with the wrist oblique
- C. Flexed about ninety degrees with the limb lateral
- D. Abducted above the head with the palm down

PRACTICE EXAM 5: ANSWER KEY AND EXPLANATIONS

- 1. D** — Two independent identifiers, such as full name and date of birth, reduce wrong-patient errors. A room number or location is not an identifier. Family confirmation and photographs may support identification, but they do not replace the facility's standardized two-identifier process before imaging or treatment. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.
- 2. A** — A competent adult retains the right to refuse care after receiving relevant information. The radiographer should stop, document the refusal according to policy, and notify the responsible provider. An order does not override autonomy, relatives cannot consent for a competent adult, and restraint is not justified merely because care is recommended.
- 3. B** — Open-ended invitations help identify the patient's specific fear and allow accurate, individualized teaching. Dismissing anxiety, diverting the conversation, or promising an outcome can undermine trust. The radiographer should listen, acknowledge concerns, explain what the patient will experience, and avoid guarantees that cannot be assured. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.
- 4. C** — Standard precautions apply to all patients and include hand hygiene, risk-based personal protective equipment, respiratory hygiene, sharps safety, and safe handling of contaminated items. N95 respirators, airborne rooms, and sterile gloves are selected for particular hazards or procedures rather than used automatically for every routine radiographic encounter. This approach supports accurate imaging while protecting the patient and maintaining consistent professional
- 5. B** — Pallor and dizziness suggest impending syncope, so preventing a fall is the immediate priority. The radiographer should support the patient, place the patient safely, summon help, and assess responsiveness and vital signs within training. Completing the exposure, encouraging deep breaths while standing, or leaving the patient increases risk. This approach supports accurate imaging while protecting the patient and maintaining consistent
- 6. C** — An incident report should contain timely, factual observations, the patient's response, notifications, and actions taken, without blame or speculation. It supports internal safety review and is handled according to policy. The medical record documents the clinical event and care, but generally should not state that an incident report was completed.
- 7. A** — Stridor and worsening respiratory difficulty indicate potentially severe airway compromise and require stopping the injection, activating emergency support, maintaining the airway, and following the department response protocol. A metallic taste and warmth are common transient sensations. Mild anticipatory anxiety deserves reassurance but does not by itself indicate a severe reaction.
- 8. D** — Locking the wheelchair and clearing footrests creates a stable transfer surface and removes tripping hazards. The radiographer should explain the plan, assess weight-bearing ability, use appropriate assistance or devices, and protect tubes and lines. Pulling the arms, using an unstable chair position, or rushing the patient increases injury risk. This approach supports accurate imaging while protecting the patient and maintaining
- 9. A** — Patient information should be shared only for legitimate care or operational purposes and in settings that limit unintended disclosure. Public conversations, curiosity-based access, and stories containing recognizable details can breach confidentiality even when a name is omitted. The radiographer should follow privacy policy and use the minimum necessary information. This approach supports accurate imaging while protecting the patient and maintaining
- 10. B** — The radiographer should recognize documented directives, communicate relevant information to the responsible clinical team, and follow institutional policy within the scope of practice. The radiographer does not independently decide complex legal questions, disregard a valid directive, or substitute personal preferences for the patient's expressed choices and authorized plan of care.
- 11. D** — Keeping the collection bag below bladder level promotes gravity drainage and reduces reflux risk. The closed system should remain intact, tubing should be protected from tension or kinking, and the bag should not rest on the patient. Routine disconnection or clamping can introduce infection or obstruct drainage unless specifically ordered.

12. C — Two independent identifiers, such as full name and date of birth, reduce wrong-patient errors. A room number or location is not an identifier. Family confirmation and photographs may support identification, but they do not replace the facility's standardized two-identifier process before imaging or treatment. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

13. C — A competent adult retains the right to refuse care after receiving relevant information. The radiographer should stop, document the refusal according to policy, and notify the responsible provider. An order does not override autonomy, relatives cannot consent for a competent adult, and restraint is not justified merely because care is recommended.

14. D — Open-ended invitations help identify the patient's specific fear and allow accurate, individualized teaching. Dismissing anxiety, diverting the conversation, or promising an outcome can undermine trust. The radiographer should listen, acknowledge concerns, explain what the patient will experience, and avoid guarantees that cannot be assured. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

15. A — Standard precautions apply to all patients and include hand hygiene, risk-based personal protective equipment, respiratory hygiene, sharps safety, and safe handling of contaminated items. N95 respirators, airborne rooms, and sterile gloves are selected for particular hazards or procedures rather than used automatically for every routine radiographic encounter. This approach supports accurate imaging while protecting the patient and maintaining consistent professional

16. B — Pallor and dizziness suggest impending syncope, so preventing a fall is the immediate priority. The radiographer should support the patient, place the patient safely, summon help, and assess responsiveness and vital signs within training. Completing the exposure, encouraging deep breaths while standing, or leaving the patient increases risk. This approach supports accurate imaging while protecting the patient and maintaining consistent

17. A — An incident report should contain timely, factual observations, the patient's response, notifications, and actions taken, without blame or speculation. It supports internal safety review and is handled according to policy. The medical record documents the clinical event and care, but generally should not state that an incident report was completed.

18. B — Stridor and worsening respiratory difficulty indicate potentially severe airway compromise and require stopping the injection, activating emergency support, maintaining the airway, and following the department response protocol. A metallic taste and warmth are common transient sensations. Mild anticipatory anxiety deserves reassurance but does not by itself indicate a severe reaction.

19. C — Locking the wheelchair and clearing footrests creates a stable transfer surface and removes tripping hazards. The radiographer should explain the plan, assess weight-bearing ability, use appropriate assistance or devices, and protect tubes and lines. Pulling the arms, using an unstable chair position, or rushing the patient increases injury risk. This approach supports accurate imaging while protecting the patient and maintaining

20. D — Patient information should be shared only for legitimate care or operational purposes and in settings that limit unintended disclosure. Public conversations, curiosity-based access, and stories containing recognizable details can breach confidentiality even when a name is omitted. The radiographer should follow privacy policy and use the minimum necessary information. This approach supports accurate imaging while protecting the patient and maintaining

21. B — The radiographer should recognize documented directives, communicate relevant information to the responsible clinical team, and follow institutional policy within the scope of practice. The radiographer does not independently decide complex legal questions, disregard a valid directive, or substitute personal preferences for the patient's expressed choices and authorized plan of care.

22. D — Keeping the collection bag below bladder level promotes gravity drainage and reduces reflux risk. The closed system should remain intact, tubing should be protected from tension or kinking, and the bag should not rest on the patient. Routine disconnection or clamping can introduce infection or obstruct drainage unless specifically ordered.

23. C — Two independent identifiers, such as full name and date of birth, reduce wrong-patient errors. A room number or location is not an identifier. Family confirmation and photographs may support identification, but they do not replace the facility's standardized two-identifier process before imaging or treatment. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

24. A — A competent adult retains the right to refuse care after receiving relevant information. The radiographer should stop, document the refusal according to policy, and notify the responsible provider. An order does not override autonomy, relatives cannot consent for a competent adult, and restraint is not justified merely because care is recommended.

25. C — Open-ended invitations help identify the patient's specific fear and allow accurate, individualized teaching. Dismissing anxiety, diverting the conversation, or promising an outcome can undermine trust. The radiographer should listen, acknowledge concerns, explain what the patient will experience, and avoid guarantees that cannot be assured. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

26. D — Standard precautions apply to all patients and include hand hygiene, risk-based personal protective equipment, respiratory hygiene, sharps safety, and safe handling of contaminated items. N95 respirators, airborne rooms, and sterile gloves are selected for particular hazards or procedures rather than used automatically for every routine radiographic encounter. This approach supports accurate imaging while protecting the patient and maintaining consistent professional

27. B — Pallor and dizziness suggest impending syncope, so preventing a fall is the immediate priority. The radiographer should support the patient, place the patient safely, summon help, and assess responsiveness and vital signs within training. Completing the exposure, encouraging deep breaths while standing, or leaving the patient increases risk. This approach supports accurate imaging while protecting the patient and maintaining consistent

28. A — An incident report should contain timely, factual observations, the patient's response, notifications, and actions taken, without blame or speculation. It supports internal safety review and is handled according to policy. The medical record documents the clinical event and care, but generally should not state that an incident report was completed.

29. D — Stridor and worsening respiratory difficulty indicate potentially severe airway compromise and require stopping the injection, activating emergency support, maintaining the airway, and following the department response protocol. A metallic taste and warmth are common transient sensations. Mild anticipatory anxiety deserves reassurance but does not by itself indicate a severe reaction.

30. C — Locking the wheelchair and clearing footrests creates a stable transfer surface and removes tripping hazards. The radiographer should explain the plan, assess weight-bearing ability, use appropriate assistance or devices, and protect tubes and lines. Pulling the arms, using an unstable chair position, or rushing the patient increases injury risk. This approach supports accurate imaging while protecting the patient and maintaining

31. B — Patient information should be shared only for legitimate care or operational purposes and in settings that limit unintended disclosure. Public conversations, curiosity-based access, and stories containing recognizable details can breach confidentiality even when a name is omitted. The radiographer should follow privacy policy and use the minimum necessary information. This approach supports accurate imaging while protecting the patient and maintaining

32. A — The radiographer should recognize documented directives, communicate relevant information to the responsible clinical team, and follow institutional policy within the scope of practice. The radiographer does not independently decide complex legal questions, disregard a valid directive, or substitute personal preferences for the patient's expressed choices and authorized plan of care.

33. A — Keeping the collection bag below bladder level promotes gravity drainage and reduces reflux risk. The closed system should remain intact, tubing should be protected from tension or kinking, and the bag should not rest on the patient. Routine disconnection or clamping can introduce infection or obstruct drainage unless specifically ordered.

34. C — Distance is a primary protection method because scattered radiation intensity decreases rapidly as distance increases. The radiographer should also minimize exposure time, use shielding when appropriate, collimate, and avoid holding patients or receptors unless no safe alternative exists. Standing near the source and enlarging the field increase unnecessary exposure. This approach supports accurate imaging while protecting the patient and maintaining

35. B — Collimation confines the x-ray field to the required anatomy, reducing patient dose and the amount of scatter produced. Less scatter generally improves image contrast. Collimation does not replace correct exposure-factor selection and does not create controlled magnification; geometry and object-to-image distance determine magnification and distortion. This approach supports accurate imaging while protecting the patient and maintaining consistent professional

practice.

36. D — Stochastic effects involve probability increasing with dose without an assumed threshold, while severity is not dose dependent. Cancer and hereditary effects are classic examples. Tissue reactions such as erythema, epilation, and cataract formation have thresholds, and their severity generally increases as absorbed dose rises above that threshold. This approach supports accurate imaging while protecting the patient and maintaining consistent professional

37. B — Increasing tube potential raises the electrical potential difference accelerating electrons toward the anode. Their greater kinetic energy produces a beam with higher maximum and average photon energies and usually greater quantity. Filament heating primarily controls electron availability and tube current; it does not independently establish maximum photon energy. This approach supports accurate imaging while protecting the patient and maintaining consistent

38. A — Added filtration preferentially absorbs low-energy photons that would contribute to patient skin dose without useful image formation. This hardens the beam by increasing average energy. Filtration does not substitute for collimation, and although technique may require adjustment, its protective purpose is not to increase skin dose or generate low-energy radiation.

39. C — A personnel dosimeter estimates exposure received by the individual during the designated monitoring period and should be worn and stored according to policy. Calibration phantoms evaluate imaging systems, lead blockers control fields or scatter, and side markers identify anatomy. None of those substitutes for individual occupational monitoring. This approach supports accurate imaging while protecting the patient and maintaining consistent professional

40. D — Keeping the receptor close to the patient reduces magnification and can help the automatic brightness or dose-rate system operate with less exposure than a large receptor-to-patient gap. The x-ray tube should remain appropriately distant from the skin. The receptor is never positioned against the tube housing. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

41. B — Compton interactions predominate over much of the diagnostic range and produce scattered photons that may leave the patient and expose personnel. Pair production and photodisintegration require energies far above routine diagnostic imaging. Filament emission releases electrons, not coherent scattered x-ray photons from the patient. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

42. C — Pregnancy does not automatically prohibit medically necessary radiography. The team should confirm the indication, optimize technique, collimate carefully, avoid repeats, and follow policy for consultation or dose estimation when warranted. Arbitrary cancellation may delay needed care, while doubling technique increases dose and excluding the patient conflicts with informed decision-making. This approach supports accurate imaging while protecting the patient and maintaining

43. D — Dose-area product reflects both dose and irradiated area, so reducing field size directly lowers the product when other factors are comparable. Tighter collimation also decreases scatter. Enlarging the field increases exposed area, while shortening distance or removing filtration can increase skin dose and does not provide equivalent protection. This approach supports accurate imaging while protecting the patient and maintaining consistent

44. A — Protective apparel with a significant defect should be removed from clinical use, labeled or segregated, and handled according to the facility's inspection and replacement policy. Folding can worsen cracks, and tape does not restore attenuation. Continuing to use compromised protection creates avoidable exposure risk and defeats quality assurance. This approach supports accurate imaging while protecting the patient and maintaining consistent

45. C — Distance is a primary protection method because scattered radiation intensity decreases rapidly as distance increases. The radiographer should also minimize exposure time, use shielding when appropriate, collimate, and avoid holding patients or receptors unless no safe alternative exists. Standing near the source and enlarging the field increase unnecessary exposure. This approach supports accurate imaging while protecting the patient and maintaining

46. D — Collimation confines the x-ray field to the required anatomy, reducing patient dose and the amount of scatter produced. Less scatter generally improves image contrast. Collimation does not replace correct exposure-factor selection and does not create controlled magnification; geometry and object-to-image distance determine magnification and

distortion. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

47. B — Stochastic effects involve probability increasing with dose without an assumed threshold, while severity is not dose dependent. Cancer and hereditary effects are classic examples. Tissue reactions such as erythema, epilation, and cataract formation have thresholds, and their severity generally increases as absorbed dose rises above that threshold. This approach supports accurate imaging while protecting the patient and maintaining consistent professional

48. A — Increasing tube potential raises the electrical potential difference accelerating electrons toward the anode. Their greater kinetic energy produces a beam with higher maximum and average photon energies and usually greater quantity. Filament heating primarily controls electron availability and tube current; it does not independently establish maximum photon energy. This approach supports accurate imaging while protecting the patient and maintaining consistent

49. C — Added filtration preferentially absorbs low-energy photons that would contribute to patient skin dose without useful image formation. This hardens the beam by increasing average energy. Filtration does not substitute for collimation, and although technique may require adjustment, its protective purpose is not to increase skin dose or generate low-energy radiation.

50. B — A personnel dosimeter estimates exposure received by the individual during the designated monitoring period and should be worn and stored according to policy. Calibration phantoms evaluate imaging systems, lead blockers control fields or scatter, and side markers identify anatomy. None of those substitutes for individual occupational monitoring. This approach supports accurate imaging while protecting the patient and maintaining consistent professional

51. D — Keeping the receptor close to the patient reduces magnification and can help the automatic brightness or dose-rate system operate with less exposure than a large receptor-to-patient gap. The x-ray tube should remain appropriately distant from the skin. The receptor is never positioned against the tube housing. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

52. A — Compton interactions predominate over much of the diagnostic range and produce scattered photons that may leave the patient and expose personnel. Pair production and photodisintegration require energies far above routine diagnostic imaging. Filament emission releases electrons, not coherent scattered x-ray photons from the patient. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

53. C — Pregnancy does not automatically prohibit medically necessary radiography. The team should confirm the indication, optimize technique, collimate carefully, avoid repeats, and follow policy for consultation or dose estimation when warranted. Arbitrary cancellation may delay needed care, while doubling technique increases dose and excluding the patient conflicts with informed decision-making. This approach supports accurate imaging while protecting the patient and maintaining

54. A — Dose-area product reflects both dose and irradiated area, so reducing field size directly lowers the product when other factors are comparable. Tighter collimation also decreases scatter. Enlarging the field increases exposed area, while shortening distance or removing filtration can increase skin dose and does not provide equivalent protection. This approach supports accurate imaging while protecting the patient and maintaining consistent

55. D — Protective apparel with a significant defect should be removed from clinical use, labeled or segregated, and handled according to the facility's inspection and replacement policy. Folding can worsen cracks, and tape does not restore attenuation. Continuing to use compromised protection creates avoidable exposure risk and defeats quality assurance. This approach supports accurate imaging while protecting the patient and maintaining consistent

56. B — Distance is a primary protection method because scattered radiation intensity decreases rapidly as distance increases. The radiographer should also minimize exposure time, use shielding when appropriate, collimate, and avoid holding patients or receptors unless no safe alternative exists. Standing near the source and enlarging the field increase unnecessary exposure. This approach supports accurate imaging while protecting the patient and maintaining

57. A — Collimation confines the x-ray field to the required anatomy, reducing patient dose and the amount of scatter produced. Less scatter generally improves image contrast. Collimation does not replace correct exposure-factor selection

and does not create controlled magnification; geometry and object-to-image distance determine magnification and distortion. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

58. D — Stochastic effects involve probability increasing with dose without an assumed threshold, while severity is not dose dependent. Cancer and hereditary effects are classic examples. Tissue reactions such as erythema, epilation, and cataract formation have thresholds, and their severity generally increases as absorbed dose rises above that threshold. This approach supports accurate imaging while protecting the patient and maintaining consistent professional

59. C — Increasing tube potential raises the electrical potential difference accelerating electrons toward the anode. Their greater kinetic energy produces a beam with higher maximum and average photon energies and usually greater quantity. Filament heating primarily controls electron availability and tube current; it does not independently establish maximum photon energy. This approach supports accurate imaging while protecting the patient and maintaining consistent

60. B — Added filtration preferentially absorbs low-energy photons that would contribute to patient skin dose without useful image formation. This hardens the beam by increasing average energy. Filtration does not substitute for collimation, and although technique may require adjustment, its protective purpose is not to increase skin dose or generate low-energy radiation.

61. D — A personnel dosimeter estimates exposure received by the individual during the designated monitoring period and should be worn and stored according to policy. Calibration phantoms evaluate imaging systems, lead blockers control fields or scatter, and side markers identify anatomy. None of those substitutes for individual occupational monitoring. This approach supports accurate imaging while protecting the patient and maintaining consistent professional

62. B — Keeping the receptor close to the patient reduces magnification and can help the automatic brightness or dose-rate system operate with less exposure than a large receptor-to-patient gap. The x-ray tube should remain appropriately distant from the skin. The receptor is never positioned against the tube housing. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

63. C — Compton interactions predominate over much of the diagnostic range and produce scattered photons that may leave the patient and expose personnel. Pair production and photodisintegration require energies far above routine diagnostic imaging. Filament emission releases electrons, not coherent scattered x-ray photons from the patient. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

64. A — Pregnancy does not automatically prohibit medically necessary radiography. The team should confirm the indication, optimize technique, collimate carefully, avoid repeats, and follow policy for consultation or dose estimation when warranted. Arbitrary cancellation may delay needed care, while doubling technique increases dose and excluding the patient conflicts with informed decision-making. This approach supports accurate imaging while protecting the patient and maintaining

65. C — Dose-area product reflects both dose and irradiated area, so reducing field size directly lowers the product when other factors are comparable. Tighter collimation also decreases scatter. Enlarging the field increases exposed area, while shortening distance or removing filtration can increase skin dose and does not provide equivalent protection. This approach supports accurate imaging while protecting the patient and maintaining consistent

66. A — Protective apparel with a significant defect should be removed from clinical use, labeled or segregated, and handled according to the facility's inspection and replacement policy. Folding can worsen cracks, and tape does not restore attenuation. Continuing to use compromised protection creates avoidable exposure risk and defeats quality assurance. This approach supports accurate imaging while protecting the patient and maintaining consistent

67. B — Distance is a primary protection method because scattered radiation intensity decreases rapidly as distance increases. The radiographer should also minimize exposure time, use shielding when appropriate, collimate, and avoid holding patients or receptors unless no safe alternative exists. Standing near the source and enlarging the field increase unnecessary exposure. This approach supports accurate imaging while protecting the patient and maintaining

68. D — Collimation confines the x-ray field to the required anatomy, reducing patient dose and the amount of scatter produced. Less scatter generally improves image contrast. Collimation does not replace correct exposure-factor selection and does not create controlled magnification; geometry and object-to-image distance determine magnification and distortion. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

69. C — Stochastic effects involve probability increasing with dose without an assumed threshold, while severity is not dose dependent. Cancer and hereditary effects are classic examples. Tissue reactions such as erythema, epilation, and cataract formation have thresholds, and their severity generally increases as absorbed dose rises above that threshold. This approach supports accurate imaging while protecting the patient and maintaining consistent professional

70. D — Increasing tube potential raises the electrical potential difference accelerating electrons toward the anode. Their greater kinetic energy produces a beam with higher maximum and average photon energies and usually greater quantity. Filament heating primarily controls electron availability and tube current; it does not independently establish maximum photon energy. This approach supports accurate imaging while protecting the patient and maintaining consistent

71. A — Added filtration preferentially absorbs low-energy photons that would contribute to patient skin dose without useful image formation. This hardens the beam by increasing average energy. Filtration does not substitute for collimation, and although technique may require adjustment, its protective purpose is not to increase skin dose or generate low-energy radiation.

72. B — A personnel dosimeter estimates exposure received by the individual during the designated monitoring period and should be worn and stored according to policy. Calibration phantoms evaluate imaging systems, lead blockers control fields or scatter, and side markers identify anatomy. None of those substitutes for individual occupational monitoring. This approach supports accurate imaging while protecting the patient and maintaining consistent professional

73. B — Keeping the receptor close to the patient reduces magnification and can help the automatic brightness or dose-rate system operate with less exposure than a large receptor-to-patient gap. The x-ray tube should remain appropriately distant from the skin. The receptor is never positioned against the tube housing. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

74. D — Compton interactions predominate over much of the diagnostic range and produce scattered photons that may leave the patient and expose personnel. Pair production and photodisintegration require energies far above routine diagnostic imaging. Filament emission releases electrons, not coherent scattered x-ray photons from the patient. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

75. A — Pregnancy does not automatically prohibit medically necessary radiography. The team should confirm the indication, optimize technique, collimate carefully, avoid repeats, and follow policy for consultation or dose estimation when warranted. Arbitrary cancellation may delay needed care, while doubling technique increases dose and excluding the patient conflicts with informed decision-making. This approach supports accurate imaging while protecting the patient and maintaining

76. C — Dose-area product reflects both dose and irradiated area, so reducing field size directly lowers the product when other factors are comparable. Tighter collimation also decreases scatter. Enlarging the field increases exposed area, while shortening distance or removing filtration can increase skin dose and does not provide equivalent protection. This approach supports accurate imaging while protecting the patient and maintaining consistent

77. C — Protective apparel with a significant defect should be removed from clinical use, labeled or segregated, and handled according to the facility's inspection and replacement policy. Folding can worsen cracks, and tape does not restore attenuation. Continuing to use compromised protection creates avoidable exposure risk and defeats quality assurance. This approach supports accurate imaging while protecting the patient and maintaining consistent

78. B — Distance is a primary protection method because scattered radiation intensity decreases rapidly as distance increases. The radiographer should also minimize exposure time, use shielding when appropriate, collimate, and avoid holding patients or receptors unless no safe alternative exists. Standing near the source and enlarging the field increase

unnecessary exposure. This approach supports accurate imaging while protecting the patient and maintaining

79. D — Collimation confines the x-ray field to the required anatomy, reducing patient dose and the amount of scatter produced. Less scatter generally improves image contrast. Collimation does not replace correct exposure-factor selection and does not create controlled magnification; geometry and object-to-image distance determine magnification and distortion. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

80. A — Stochastic effects involve probability increasing with dose without an assumed threshold, while severity is not dose dependent. Cancer and hereditary effects are classic examples. Tissue reactions such as erythema, epilation, and cataract formation have thresholds, and their severity generally increases as absorbed dose rises above that threshold. This approach supports accurate imaging while protecting the patient and maintaining consistent professional

81. C — Increasing tube potential raises the electrical potential difference accelerating electrons toward the anode. Their greater kinetic energy produces a beam with higher maximum and average photon energies and usually greater quantity. Filament heating primarily controls electron availability and tube current; it does not independently establish maximum photon energy. This approach supports accurate imaging while protecting the patient and maintaining consistent

82. D — Added filtration preferentially absorbs low-energy photons that would contribute to patient skin dose without useful image formation. This hardens the beam by increasing average energy. Filtration does not substitute for collimation, and although technique may require adjustment, its protective purpose is not to increase skin dose or generate low-energy radiation.

83. B — A personnel dosimeter estimates exposure received by the individual during the designated monitoring period and should be worn and stored according to policy. Calibration phantoms evaluate imaging systems, lead blockers control fields or scatter, and side markers identify anatomy. None of those substitutes for individual occupational monitoring. This approach supports accurate imaging while protecting the patient and maintaining consistent professional

84. A — Milliampere-seconds represents tube current multiplied by exposure time and primarily controls the number of electrons crossing the tube, therefore influencing photon quantity and receptor exposure. Distance affects intensity at the receptor, while focal-spot size and anode angle influence geometry and tube design rather than serving as the primary quantity control.

85. B — Increasing object-to-image distance allows the x-ray beam to diverge more before reaching the receptor, producing greater magnification and geometric unsharpness. Keeping anatomy close to the receptor improves recorded detail. Contrast is primarily influenced by beam energy, scatter, receptor processing, and display, not by object distance alone. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

86. A — Shape distortion results from misalignment of the x-ray tube, anatomy, and receptor. Correct positioning and central-ray alignment minimize elongation and foreshortening. Increasing object distance increases magnification, a larger focal spot reduces spatial resolution, and uncoordinated angulation changes projected shape rather than correcting it. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

87. C — A grid improves image contrast by absorbing a substantial portion of obliquely traveling scattered radiation before it reaches the detector. Because it also absorbs some primary radiation, technique usually must increase. It does not generate photons, immobilize the patient, or correct identification and labeling errors. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

88. D — The exposure indicator provides manufacturer-specific feedback about radiation reaching the detector and helps identify underexposure or overexposure. Display brightness can be altered by processing and windowing, so an acceptable-looking image may still reflect inappropriate exposure. Temperature and side markers do not measure detector exposure. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

89. C — Digital systems can mask overexposure by rescaling image brightness, allowing technique factors to drift upward over time without obvious dark images. Monitoring exposure indicators, technique charts, and repeat data helps control this

dose increase. Exposure creep is not a detector failure, collimation effect, or identification error. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

90. A — A line-pair or similar high-contrast resolution pattern assesses the system's ability to distinguish small adjacent structures. Room illumination affects viewing conditions but is not itself a detector spatial-resolution test. Scheduling and supply counts are operational activities and do not measure how finely the imaging chain records detail. This approach supports accurate imaging while protecting the patient and maintaining consistent professional

91. B — Quantum noise becomes prominent when an insufficient number of photons are detected, creating random statistical variation and a mottled appearance. Increasing receptor exposure appropriately can improve signal-to-noise ratio, but dose must remain optimized. Monitor settings, demographic entry, and anatomical markers do not create photon-counting noise. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

92. D — Clear breathing instructions, rehearsal, immobilization when appropriate, and a shorter exposure time reduce voluntary motion blur. Increasing object distance worsens geometric unsharpness, a longer exposure increases the opportunity for motion, and removing supports may make the patient less stable. Technique changes should preserve required receptor exposure. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

93. B — Window width controls the range of pixel values mapped across the grayscale, thereby altering displayed contrast. A narrow width produces higher displayed contrast, while a wide width shows more gray shades. It does not change focal-spot size, filtration, or radiation already delivered to the patient. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

94. A — Reject analysis reveals recurring causes such as positioning, motion, exposure, anatomy cutoff, or processing errors. Trending these data supports focused education and system improvement while reducing avoidable patient dose. It should not encourage unnecessary repeats and does not replace preventive maintenance, competency review, or professional judgment about image adequacy. This approach supports accurate imaging while protecting the patient and maintaining

95. C — Milliampere-seconds represents tube current multiplied by exposure time and primarily controls the number of electrons crossing the tube, therefore influencing photon quantity and receptor exposure. Distance affects intensity at the receptor, while focal-spot size and anode angle influence geometry and tube design rather than serving as the primary quantity control.

96. D — Increasing object-to-image distance allows the x-ray beam to diverge more before reaching the receptor, producing greater magnification and geometric unsharpness. Keeping anatomy close to the receptor improves recorded detail. Contrast is primarily influenced by beam energy, scatter, receptor processing, and display, not by object distance alone. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

97. A — Shape distortion results from misalignment of the x-ray tube, anatomy, and receptor. Correct positioning and central-ray alignment minimize elongation and foreshortening. Increasing object distance increases magnification, a larger focal spot reduces spatial resolution, and uncoordinated angulation changes projected shape rather than correcting it. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

98. B — A grid improves image contrast by absorbing a substantial portion of obliquely traveling scattered radiation before it reaches the detector. Because it also absorbs some primary radiation, technique usually must increase. It does not generate photons, immobilize the patient, or correct identification and labeling errors. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

99. C — The exposure indicator provides manufacturer-specific feedback about radiation reaching the detector and helps identify underexposure or overexposure. Display brightness can be altered by processing and windowing, so an acceptable-looking image may still reflect inappropriate exposure. Temperature and side markers do not measure detector exposure. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

100. D — Digital systems can mask overexposure by rescaling image brightness, allowing technique factors to drift upward over time without obvious dark images. Monitoring exposure indicators, technique charts, and repeat data helps control this dose increase. Exposure creep is not a detector failure, collimation effect, or identification error. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

101. B — A line-pair or similar high-contrast resolution pattern assesses the system's ability to distinguish small adjacent structures. Room illumination affects viewing conditions but is not itself a detector spatial-resolution test. Scheduling and supply counts are operational activities and do not measure how finely the imaging chain records detail. This approach supports accurate imaging while protecting the patient and maintaining consistent professional

102. D — Quantum noise becomes prominent when an insufficient number of photons are detected, creating random statistical variation and a mottled appearance. Increasing receptor exposure appropriately can improve signal-to-noise ratio, but dose must remain optimized. Monitor settings, demographic entry, and anatomical markers do not create photon-counting noise. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

103. C — Clear breathing instructions, rehearsal, immobilization when appropriate, and a shorter exposure time reduce voluntary motion blur. Increasing object distance worsens geometric unsharpness, a longer exposure increases the opportunity for motion, and removing supports may make the patient less stable. Technique changes should preserve required receptor exposure. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

104. A — Window width controls the range of pixel values mapped across the grayscale, thereby altering displayed contrast. A narrow width produces higher displayed contrast, while a wide width shows more gray shades. It does not change focal-spot size, filtration, or radiation already delivered to the patient. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

105. C — Reject analysis reveals recurring causes such as positioning, motion, exposure, anatomy cutoff, or processing errors. Trending these data supports focused education and system improvement while reducing avoidable patient dose. It should not encourage unnecessary repeats and does not replace preventive maintenance, competency review, or professional judgment about image adequacy. This approach supports accurate imaging while protecting the patient and maintaining

106. A — Milliampere-seconds represents tube current multiplied by exposure time and primarily controls the number of electrons crossing the tube, therefore influencing photon quantity and receptor exposure. Distance affects intensity at the receptor, while focal-spot size and anode angle influence geometry and tube design rather than serving as the primary quantity control.

107. B — Increasing object-to-image distance allows the x-ray beam to diverge more before reaching the receptor, producing greater magnification and geometric unsharpness. Keeping anatomy close to the receptor improves recorded detail. Contrast is primarily influenced by beam energy, scatter, receptor processing, and display, not by object distance alone. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

108. D — Shape distortion results from misalignment of the x-ray tube, anatomy, and receptor. Correct positioning and central-ray alignment minimize elongation and foreshortening. Increasing object distance increases magnification, a larger focal spot reduces spatial resolution, and uncoordinated angulation changes projected shape rather than correcting it. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

109. C — A grid improves image contrast by absorbing a substantial portion of obliquely traveling scattered radiation before it reaches the detector. Because it also absorbs some primary radiation, technique usually must increase. It does not generate photons, immobilize the patient, or correct identification and labeling errors. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

110. B — The exposure indicator provides manufacturer-specific feedback about radiation reaching the detector and helps identify underexposure or overexposure. Display brightness can be altered by processing and windowing, so an

acceptable-looking image may still reflect inappropriate exposure. Temperature and side markers do not measure detector exposure. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

111. D — Digital systems can mask overexposure by rescaling image brightness, allowing technique factors to drift upward over time without obvious dark images. Monitoring exposure indicators, technique charts, and repeat data helps control this dose increase. Exposure creep is not a detector failure, collimation effect, or identification error. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

112. A — A line-pair or similar high-contrast resolution pattern assesses the system's ability to distinguish small adjacent structures. Room illumination affects viewing conditions but is not itself a detector spatial-resolution test. Scheduling and supply counts are operational activities and do not measure how finely the imaging chain records detail. This approach supports accurate imaging while protecting the patient and maintaining consistent professional

113. D — Quantum noise becomes prominent when an insufficient number of photons are detected, creating random statistical variation and a mottled appearance. Increasing receptor exposure appropriately can improve signal-to-noise ratio, but dose must remain optimized. Monitor settings, demographic entry, and anatomical markers do not create photon-counting noise. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

114. A — Clear breathing instructions, rehearsal, immobilization when appropriate, and a shorter exposure time reduce voluntary motion blur. Increasing object distance worsens geometric unsharpness, a longer exposure increases the opportunity for motion, and removing supports may make the patient less stable. Technique changes should preserve required receptor exposure. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

115. B — Window width controls the range of pixel values mapped across the grayscale, thereby altering displayed contrast. A narrow width produces higher displayed contrast, while a wide width shows more gray shades. It does not change focal-spot size, filtration, or radiation already delivered to the patient. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

116. C — Reject analysis reveals recurring causes such as positioning, motion, exposure, anatomy cutoff, or processing errors. Trending these data supports focused education and system improvement while reducing avoidable patient dose. It should not encourage unnecessary repeats and does not replace preventive maintenance, competency review, or professional judgment about image adequacy. This approach supports accurate imaging while protecting the patient and maintaining

117. C — Milliampere-seconds represents tube current multiplied by exposure time and primarily controls the number of electrons crossing the tube, therefore influencing photon quantity and receptor exposure. Distance affects intensity at the receptor, while focal-spot size and anode angle influence geometry and tube design rather than serving as the primary quantity control.

118. A — Increasing object-to-image distance allows the x-ray beam to diverge more before reaching the receptor, producing greater magnification and geometric unsharpness. Keeping anatomy close to the receptor improves recorded detail. Contrast is primarily influenced by beam energy, scatter, receptor processing, and display, not by object distance alone. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

119. B — Shape distortion results from misalignment of the x-ray tube, anatomy, and receptor. Correct positioning and central-ray alignment minimize elongation and foreshortening. Increasing object distance increases magnification, a larger focal spot reduces spatial resolution, and uncoordinated angulation changes projected shape rather than correcting it. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

120. D — A grid improves image contrast by absorbing a substantial portion of obliquely traveling scattered radiation before it reaches the detector. Because it also absorbs some primary radiation, technique usually must increase. It does not generate photons, immobilize the patient, or correct identification and labeling errors. This approach supports accurate

imaging while protecting the patient and maintaining consistent professional practice.

121. B — The exposure indicator provides manufacturer-specific feedback about radiation reaching the detector and helps identify underexposure or overexposure. Display brightness can be altered by processing and windowing, so an acceptable-looking image may still reflect inappropriate exposure. Temperature and side markers do not measure detector exposure. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

122. C — Digital systems can mask overexposure by rescaling image brightness, allowing technique factors to drift upward over time without obvious dark images. Monitoring exposure indicators, technique charts, and repeat data helps control this dose increase. Exposure creep is not a detector failure, collimation effect, or identification error. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

123. D — A line-pair or similar high-contrast resolution pattern assesses the system's ability to distinguish small adjacent structures. Room illumination affects viewing conditions but is not itself a detector spatial-resolution test. Scheduling and supply counts are operational activities and do not measure how finely the imaging chain records detail. This approach supports accurate imaging while protecting the patient and maintaining consistent professional

124. A — Quantum noise becomes prominent when an insufficient number of photons are detected, creating random statistical variation and a mottled appearance. Increasing receptor exposure appropriately can improve signal-to-noise ratio, but dose must remain optimized. Monitor settings, demographic entry, and anatomical markers do not create photon-counting noise. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

125. A — Clear breathing instructions, rehearsal, immobilization when appropriate, and a shorter exposure time reduce voluntary motion blur. Increasing object distance worsens geometric unsharpness, a longer exposure increases the opportunity for motion, and removing supports may make the patient less stable. Technique changes should preserve required receptor exposure. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

126. C — Window width controls the range of pixel values mapped across the grayscale, thereby altering displayed contrast. A narrow width produces higher displayed contrast, while a wide width shows more gray shades. It does not change focal-spot size, filtration, or radiation already delivered to the patient. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

127. D — Reject analysis reveals recurring causes such as positioning, motion, exposure, anatomy cutoff, or processing errors. Trending these data supports focused education and system improvement while reducing avoidable patient dose. It should not encourage unnecessary repeats and does not replace preventive maintenance, competency review, or professional judgment about image adequacy. This approach supports accurate imaging while protecting the patient and maintaining

128. B — Milliampere-seconds represents tube current multiplied by exposure time and primarily controls the number of electrons crossing the tube, therefore influencing photon quantity and receptor exposure. Distance affects intensity at the receptor, while focal-spot size and anode angle influence geometry and tube design rather than serving as the primary quantity control.

129. A — Increasing object-to-image distance allows the x-ray beam to diverge more before reaching the receptor, producing greater magnification and geometric unsharpness. Keeping anatomy close to the receptor improves recorded detail. Contrast is primarily influenced by beam energy, scatter, receptor processing, and display, not by object distance alone. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

130. B — Shape distortion results from misalignment of the x-ray tube, anatomy, and receptor. Correct positioning and central-ray alignment minimize elongation and foreshortening. Increasing object distance increases magnification, a larger focal spot reduces spatial resolution, and uncoordinated angulation changes projected shape rather than correcting it. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

131. D — A grid improves image contrast by absorbing a substantial portion of obliquely traveling scattered radiation before it reaches the detector. Because it also absorbs some primary radiation, technique usually must increase. It does not generate photons, immobilize the patient, or correct identification and labeling errors. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

132. C — The exposure indicator provides manufacturer-specific feedback about radiation reaching the detector and helps identify underexposure or overexposure. Display brightness can be altered by processing and windowing, so an acceptable-looking image may still reflect inappropriate exposure. Temperature and side markers do not measure detector exposure. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

133. C — Digital systems can mask overexposure by rescaling image brightness, allowing technique factors to drift upward over time without obvious dark images. Monitoring exposure indicators, technique charts, and repeat data helps control this dose increase. Exposure creep is not a detector failure, collimation effect, or identification error. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

134. B — A line-pair or similar high-contrast resolution pattern assesses the system's ability to distinguish small adjacent structures. Room illumination affects viewing conditions but is not itself a detector spatial-resolution test. Scheduling and supply counts are operational activities and do not measure how finely the imaging chain records detail. This approach supports accurate imaging while protecting the patient and maintaining consistent professional

135. A — Rolling the shoulders forward moves the scapulae laterally away from the lung fields, improving visualization on a PA chest image. The patient should avoid rotation and keep the chin elevated. Elevating or retracting the shoulders can obscure anatomy, while rotation produces asymmetric thoracic structures. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

136. D — A full inspiration expands the lungs, depresses the diaphragm, and permits better evaluation of pulmonary anatomy. Taking a second deep breath commonly promotes maximal inspiration before suspension. Expiration or shallow breathing reduces lung expansion, and swallowing is unrelated to the required respiratory phase for a routine chest projection. This approach supports accurate imaging while protecting the patient and maintaining consistent

137. C — The AP axial cervical projection uses a cephalad central-ray angle to help project the intervertebral disk spaces and reduce superimposition of adjacent structures. Accurate centering and chin positioning remain essential. Caudad thoracic, pelvic, and distal femoral directions describe unrelated projections and would not demonstrate the cervical spine appropriately. This approach supports accurate imaging while protecting the patient and maintaining consistent

138. D — The Grashey method places the scapular plane parallel to the receptor so the glenoid cavity is seen in profile and the glenohumeral joint space opens. The amount of obliquity depends on body habitus. Hand, clavicle, and sternum projections do not provide the required shoulder joint alignment. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

139. A — A properly positioned lateral knee shows the femoral condyles nearly superimposed, indicating limited rotation. The patella appears in profile, and some proximal tibiofibular superimposition is expected. Condylar separation suggests rotation or incorrect central-ray angle and can obscure assessment of the joint and patellofemoral structures. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

140. B — The left lateral decubitus position allows free intraperitoneal air to rise along the right side, away from the gastric bubble, and a horizontal beam demonstrates air-fluid levels. A vertical-beam supine image does not show levels reliably. Right decubitus can obscure free air near the liver. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

141. B — Internal rotation of the lower limbs, when not contraindicated, places the femoral necks more parallel to the receptor and reduces lesser-trochanter prominence. Suspected fracture or dislocation is a contraindication to forced rotation. External rotation, sharp flexion, or crossing the legs distorts pelvic and hip anatomy. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

142. C — Ulnar deviation elongates the scaphoid and reduces superimposition, improving visualization of this commonly injured carpal bone. Additional angled projections may be included by protocol. Forearm, humerus, and patellar techniques do not position the carpal bones for focused scaphoid assessment. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

143. D — A cross-table lateral hip uses a horizontal beam and positions the receptor beside the affected hip, allowing trauma evaluation without rotating or abducting the injured limb. The unaffected leg is elevated when possible. The method still requires precise receptor placement and does not aim to magnify both hips. This approach supports accurate imaging while protecting the patient and maintaining consistent

144. A — A routine AP lumbar image should include the lumbar vertebrae, intervertebral spaces, transverse processes, and the adjacent sacral region according to protocol. Correct centering, collimation, and absence of rotation are important. Restricting the image to thoracic, cranial, or distal coccygeal anatomy would miss the requested region. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

145. C — Flexing the elbow about ninety degrees and placing the humeral epicondyles perpendicular to the receptor produces a lateral forearm with the radius and ulna appropriately related. The wrist and elbow should both be included. Extension, hyperextension, or overhead abduction does not create the routine lateral relationship. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

146. A — Rolling the shoulders forward moves the scapulae laterally away from the lung fields, improving visualization on a PA chest image. The patient should avoid rotation and keep the chin elevated. Elevating or retracting the shoulders can obscure anatomy, while rotation produces asymmetric thoracic structures. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

147. D — A full inspiration expands the lungs, depresses the diaphragm, and permits better evaluation of pulmonary anatomy. Taking a second deep breath commonly promotes maximal inspiration before suspension. Expiration or shallow breathing reduces lung expansion, and swallowing is unrelated to the required respiratory phase for a routine chest projection. This approach supports accurate imaging while protecting the patient and maintaining consistent

148. B — The AP axial cervical projection uses a cephalad central-ray angle to help project the intervertebral disk spaces and reduce superimposition of adjacent structures. Accurate centering and chin positioning remain essential. Caudad thoracic, pelvic, and distal femoral directions describe unrelated projections and would not demonstrate the cervical spine appropriately. This approach supports accurate imaging while protecting the patient and maintaining consistent

149. D — The Grashey method places the scapular plane parallel to the receptor so the glenoid cavity is seen in profile and the glenohumeral joint space opens. The amount of obliquity depends on body habitus. Hand, clavicle, and sternum projections do not provide the required shoulder joint alignment. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

150. C — A properly positioned lateral knee shows the femoral condyles nearly superimposed, indicating limited rotation. The patella appears in profile, and some proximal tibiofibular superimposition is expected. Condylar separation suggests rotation or incorrect central-ray angle and can obscure assessment of the joint and patellofemoral structures. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

151. A — The left lateral decubitus position allows free intraperitoneal air to rise along the right side, away from the gastric bubble, and a horizontal beam demonstrates air-fluid levels. A vertical-beam supine image does not show levels reliably. Right decubitus can obscure free air near the liver. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

152. B — Internal rotation of the lower limbs, when not contraindicated, places the femoral necks more parallel to the receptor and reduces lesser-trochanter prominence. Suspected fracture or dislocation is a contraindication to forced rotation. External rotation, sharp flexion, or crossing the legs distorts pelvic and hip anatomy. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

153. A — Ulnar deviation elongates the scaphoid and reduces superimposition, improving visualization of this commonly injured carpal bone. Additional angled projections may be included by protocol. Forearm, humerus, and patellar techniques do not position the carpal bones for focused scaphoid assessment. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

154. C — A cross-table lateral hip uses a horizontal beam and positions the receptor beside the affected hip, allowing trauma evaluation without rotating or abducting the injured limb. The unaffected leg is elevated when possible. The method still requires precise receptor placement and does not aim to magnify both hips. This approach supports accurate imaging while protecting the patient and maintaining consistent

155. B — A routine AP lumbar image should include the lumbar vertebrae, intervertebral spaces, transverse processes, and the adjacent sacral region according to protocol. Correct centering, collimation, and absence of rotation are important. Restricting the image to thoracic, cranial, or distal coccygeal anatomy would miss the requested region. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

156. D — Flexing the elbow about ninety degrees and placing the humeral epicondyles perpendicular to the receptor produces a lateral forearm with the radius and ulna appropriately related. The wrist and elbow should both be included. Extension, hyperextension, or overhead abduction does not create the routine lateral relationship. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

157. B — Rolling the shoulders forward moves the scapulae laterally away from the lung fields, improving visualization on a PA chest image. The patient should avoid rotation and keep the chin elevated. Elevating or retracting the shoulders can obscure anatomy, while rotation produces asymmetric thoracic structures. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

158. D — A full inspiration expands the lungs, depresses the diaphragm, and permits better evaluation of pulmonary anatomy. Taking a second deep breath commonly promotes maximal inspiration before suspension. Expiration or shallow breathing reduces lung expansion, and swallowing is unrelated to the required respiratory phase for a routine chest projection. This approach supports accurate imaging while protecting the patient and maintaining consistent

159. C — The AP axial cervical projection uses a cephalad central-ray angle to help project the intervertebral disk spaces and reduce superimposition of adjacent structures. Accurate centering and chin positioning remain essential. Caudad thoracic, pelvic, and distal femoral directions describe unrelated projections and would not demonstrate the cervical spine appropriately. This approach supports accurate imaging while protecting the patient and maintaining consistent

160. A — The Grashey method places the scapular plane parallel to the receptor so the glenoid cavity is seen in profile and the glenohumeral joint space opens. The amount of obliquity depends on body habitus. Hand, clavicle, and sternum projections do not provide the required shoulder joint alignment. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

161. A — A properly positioned lateral knee shows the femoral condyles nearly superimposed, indicating limited rotation. The patella appears in profile, and some proximal tibiofibular superimposition is expected. Condylar separation suggests rotation or incorrect central-ray angle and can obscure assessment of the joint and patellofemoral structures. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

162. C — The left lateral decubitus position allows free intraperitoneal air to rise along the right side, away from the gastric bubble, and a horizontal beam demonstrates air-fluid levels. A vertical-beam supine image does not show levels reliably. Right decubitus can obscure free air near the liver. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

163. D — Internal rotation of the lower limbs, when not contraindicated, places the femoral necks more parallel to the receptor and reduces lesser-trochanter prominence. Suspected fracture or dislocation is a contraindication to forced rotation. External rotation, sharp flexion, or crossing the legs distorts pelvic and hip anatomy. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

164. B — Ulnar deviation elongates the scaphoid and reduces superimposition, improving visualization of this commonly injured carpal bone. Additional angled projections may be included by protocol. Forearm, humerus, and patellar techniques do not position the carpal bones for focused scaphoid assessment. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

165. D — A cross-table lateral hip uses a horizontal beam and positions the receptor beside the affected hip, allowing trauma evaluation without rotating or abducting the injured limb. The unaffected leg is elevated when possible. The method still requires precise receptor placement and does not aim to magnify both hips. This approach supports accurate imaging while protecting the patient and maintaining consistent

166. B — A routine AP lumbar image should include the lumbar vertebrae, intervertebral spaces, transverse processes, and the adjacent sacral region according to protocol. Correct centering, collimation, and absence of rotation are important. Restricting the image to thoracic, cranial, or distal coccygeal anatomy would miss the requested region. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

167. C — Flexing the elbow about ninety degrees and placing the humeral epicondyles perpendicular to the receptor produces a lateral forearm with the radius and ulna appropriately related. The wrist and elbow should both be included. Extension, hyperextension, or overhead abduction does not create the routine lateral relationship. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

168. A — Rolling the shoulders forward moves the scapulae laterally away from the lung fields, improving visualization on a PA chest image. The patient should avoid rotation and keep the chin elevated. Elevating or retracting the shoulders can obscure anatomy, while rotation produces asymmetric thoracic structures. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

169. B — A full inspiration expands the lungs, depresses the diaphragm, and permits better evaluation of pulmonary anatomy. Taking a second deep breath commonly promotes maximal inspiration before suspension. Expiration or shallow breathing reduces lung expansion, and swallowing is unrelated to the required respiratory phase for a routine chest projection. This approach supports accurate imaging while protecting the patient and maintaining consistent

170. A — The AP axial cervical projection uses a cephalad central-ray angle to help project the intervertebral disk spaces and reduce superimposition of adjacent structures. Accurate centering and chin positioning remain essential. Caudad thoracic, pelvic, and distal femoral directions describe unrelated projections and would not demonstrate the cervical spine appropriately. This approach supports accurate imaging while protecting the patient and maintaining consistent

171. D — The Grashey method places the scapular plane parallel to the receptor so the glenoid cavity is seen in profile and the glenohumeral joint space opens. The amount of obliquity depends on body habitus. Hand, clavicle, and sternum projections do not provide the required shoulder joint alignment. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

172. C — A properly positioned lateral knee shows the femoral condyles nearly superimposed, indicating limited rotation. The patella appears in profile, and some proximal tibiofibular superimposition is expected. Condylar separation suggests rotation or incorrect central-ray angle and can obscure assessment of the joint and patellofemoral structures. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

173. D — The left lateral decubitus position allows free intraperitoneal air to rise along the right side, away from the gastric bubble, and a horizontal beam demonstrates air-fluid levels. A vertical-beam supine image does not show levels reliably. Right decubitus can obscure free air near the liver. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

174. C — Internal rotation of the lower limbs, when not contraindicated, places the femoral necks more parallel to the receptor and reduces lesser-trochanter prominence. Suspected fracture or dislocation is a contraindication to forced rotation. External rotation, sharp flexion, or crossing the legs distorts pelvic and hip anatomy. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

175. A — Ulnar deviation elongates the scaphoid and reduces superimposition, improving visualization of this commonly injured carpal bone. Additional angled projections may be included by protocol. Forearm, humerus, and patellar techniques do not position the carpal bones for focused scaphoid assessment. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

176. B — A cross-table lateral hip uses a horizontal beam and positions the receptor beside the affected hip, allowing trauma evaluation without rotating or abducting the injured limb. The unaffected leg is elevated when possible. The method still requires precise receptor placement and does not aim to magnify both hips. This approach supports accurate imaging while protecting the patient and maintaining consistent

177. B — A routine AP lumbar image should include the lumbar vertebrae, intervertebral spaces, transverse processes, and the adjacent sacral region according to protocol. Correct centering, collimation, and absence of rotation are important. Restricting the image to thoracic, cranial, or distal coccygeal anatomy would miss the requested region. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

178. A — Flexing the elbow about ninety degrees and placing the humeral epicondyles perpendicular to the receptor produces a lateral forearm with the radius and ulna appropriately related. The wrist and elbow should both be included. Extension, hyperextension, or overhead abduction does not create the routine lateral relationship. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

179. D — Rolling the shoulders forward moves the scapulae laterally away from the lung fields, improving visualization on a PA chest image. The patient should avoid rotation and keep the chin elevated. Elevating or retracting the shoulders can obscure anatomy, while rotation produces asymmetric thoracic structures. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

180. C — A full inspiration expands the lungs, depresses the diaphragm, and permits better evaluation of pulmonary anatomy. Taking a second deep breath commonly promotes maximal inspiration before suspension. Expiration or shallow breathing reduces lung expansion, and swallowing is unrelated to the required respiratory phase for a routine chest projection. This approach supports accurate imaging while protecting the patient and maintaining consistent

181. B — The AP axial cervical projection uses a cephalad central-ray angle to help project the intervertebral disk spaces and reduce superimposition of adjacent structures. Accurate centering and chin positioning remain essential. Caudad thoracic, pelvic, and distal femoral directions describe unrelated projections and would not demonstrate the cervical spine appropriately. This approach supports accurate imaging while protecting the patient and maintaining consistent

182. D — The Grashey method places the scapular plane parallel to the receptor so the glenoid cavity is seen in profile and the glenohumeral joint space opens. The amount of obliquity depends on body habitus. Hand, clavicle, and sternum projections do not provide the required shoulder joint alignment. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

183. A — A properly positioned lateral knee shows the femoral condyles nearly superimposed, indicating limited rotation. The patella appears in profile, and some proximal tibiofibular superimposition is expected. Condylar separation suggests rotation or incorrect central-ray angle and can obscure assessment of the joint and patellofemoral structures. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

184. C — The left lateral decubitus position allows free intraperitoneal air to rise along the right side, away from the gastric bubble, and a horizontal beam demonstrates air-fluid levels. A vertical-beam supine image does not show levels reliably. Right decubitus can obscure free air near the liver. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

185. C — Internal rotation of the lower limbs, when not contraindicated, places the femoral necks more parallel to the receptor and reduces lesser-trochanter prominence. Suspected fracture or dislocation is a contraindication to forced rotation. External rotation, sharp flexion, or crossing the legs distorts pelvic and hip anatomy. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

186. B — Ulnar deviation elongates the scaphoid and reduces superimposition, improving visualization of this commonly injured carpal bone. Additional angled projections may be included by protocol. Forearm, humerus, and patellar techniques do not position the carpal bones for focused scaphoid assessment. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

187. D — A cross-table lateral hip uses a horizontal beam and positions the receptor beside the affected hip, allowing trauma evaluation without rotating or abducting the injured limb. The unaffected leg is elevated when possible. The method still requires precise receptor placement and does not aim to magnify both hips. This approach supports accurate imaging while protecting the patient and maintaining consistent

188. A — A routine AP lumbar image should include the lumbar vertebrae, intervertebral spaces, transverse processes, and the adjacent sacral region according to protocol. Correct centering, collimation, and absence of rotation are important. Restricting the image to thoracic, cranial, or distal coccygeal anatomy would miss the requested region. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

189. C — Flexing the elbow about ninety degrees and placing the humeral epicondyles perpendicular to the receptor produces a lateral forearm with the radius and ulna appropriately related. The wrist and elbow should both be included. Extension, hyperextension, or overhead abduction does not create the routine lateral relationship. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

190. B — Rolling the shoulders forward moves the scapulae laterally away from the lung fields, improving visualization on a PA chest image. The patient should avoid rotation and keep the chin elevated. Elevating or retracting the shoulders can obscure anatomy, while rotation produces asymmetric thoracic structures. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

191. D — A full inspiration expands the lungs, depresses the diaphragm, and permits better evaluation of pulmonary anatomy. Taking a second deep breath commonly promotes maximal inspiration before suspension. Expiration or shallow breathing reduces lung expansion, and swallowing is unrelated to the required respiratory phase for a routine chest projection. This approach supports accurate imaging while protecting the patient and maintaining consistent

192. C — The AP axial cervical projection uses a cephalad central-ray angle to help project the intervertebral disk spaces and reduce superimposition of adjacent structures. Accurate centering and chin positioning remain essential. Caudad thoracic, pelvic, and distal femoral directions describe unrelated projections and would not demonstrate the cervical spine appropriately. This approach supports accurate imaging while protecting the patient and maintaining consistent

193. A — The Grashey method places the scapular plane parallel to the receptor so the glenoid cavity is seen in profile and the glenohumeral joint space opens. The amount of obliquity depends on body habitus. Hand, clavicle, and sternum projections do not provide the required shoulder joint alignment. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

194. B — A properly positioned lateral knee shows the femoral condyles nearly superimposed, indicating limited rotation. The patella appears in profile, and some proximal tibiofibular superimposition is expected. Condylar separation suggests rotation or incorrect central-ray angle and can obscure assessment of the joint and patellofemoral structures. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

195. D — The left lateral decubitus position allows free intraperitoneal air to rise along the right side, away from the gastric bubble, and a horizontal beam demonstrates air-fluid levels. A vertical-beam supine image does not show levels reliably. Right decubitus can obscure free air near the liver. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

196. A — Internal rotation of the lower limbs, when not contraindicated, places the femoral necks more parallel to the receptor and reduces lesser-trochanter prominence. Suspected fracture or dislocation is a contraindication to forced rotation. External rotation, sharp flexion, or crossing the legs distorts pelvic and hip anatomy. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

197. A — Ulnar deviation elongates the scaphoid and reduces superimposition, improving visualization of this commonly injured carpal bone. Additional angled projections may be included by protocol. Forearm, humerus, and patellar techniques do not position the carpal bones for focused scaphoid assessment. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

198. D — A cross-table lateral hip uses a horizontal beam and positions the receptor beside the affected hip, allowing trauma evaluation without rotating or abducting the injured limb. The unaffected leg is elevated when possible. The method still requires precise receptor placement and does not aim to magnify both hips. This approach supports accurate imaging while protecting the patient and maintaining consistent

199. B — A routine AP lumbar image should include the lumbar vertebrae, intervertebral spaces, transverse processes, and the adjacent sacral region according to protocol. Correct centering, collimation, and absence of rotation are important. Restricting the image to thoracic, cranial, or distal coccygeal anatomy would miss the requested region. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

200. C — Flexing the elbow about ninety degrees and placing the humeral epicondyles perpendicular to the receptor produces a lateral forearm with the radius and ulna appropriately related. The wrist and elbow should both be included. Extension, hyperextension, or overhead abduction does not create the routine lateral relationship. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.