

PRACTICE EXAM 4: ARRT RADIOGRAPHY SIMULATION

(200 QUESTIONS)

This standalone practice exam contains 200 scored-style questions. Select the single best answer for each item. The current ARRT Radiography examination contains 200 scored questions plus 30 unscored pilot questions. A scaled score of 75 is required to pass. This exam follows the content specifications in effect through February 28, 2027. ARRT introduces revised domain counts and updated digital-imaging content on March 1, 2027.

1. Before beginning any examination, what is the safest patient-identification method?
 - A. Confirm only the room number
 - B. Ask another patient to identify them
 - C. Use two approved identifiers
 - D. Rely on the requisition photograph

2. Which action best preserves confidentiality when discussing an examination?
 - A. Discuss details in a public elevator
 - B. Speak privately with involved staff
 - C. Leave the chart open at reception
 - D. Share results with an unverified caller

3. A competent adult refuses an ordered radiograph. What should the radiographer do first?
 - A. Restrain the patient for the exposure
 - B. Ask a family member to consent
 - C. Proceed because the order is signed
 - D. Stop and notify the responsible provider

4. Which technique is most appropriate for a patient with limited English proficiency?

- A. Use a qualified medical interpreter
- B. Use a minor child as interpreter
- C. Speak louder using technical terms
- D. Obtain consent through gestures alone

5. After removing gloves, what infection-control action remains required?

- A. Touch clean supplies before washing
- B. Perform hand hygiene promptly
- C. Reuse gloves if visibly clean
- D. Apply lotion instead of washing

6. Which item belongs in a sharps container immediately after use?

- A. A blood-soiled disposable sheet
- B. An empty contrast bottle
- C. A used nonsharp tourniquet
- D. An uncapped contaminated needle

7. A patient becomes pale, sweaty, and confused after fasting. What is the priority response?

- A. Complete all remaining projections
- B. Have the patient walk unassisted
- C. Stop the exam and assess immediately
- D. Leave to find the next patient

8. During a seizure, which action is appropriate?

- A. Protect the patient from injury
- B. Force an object between the teeth
- C. Restrain all limb movement firmly
- D. Give oral fluids during convulsions

9. Which observation most strongly suggests a severe contrast reaction?

- A. A brief metallic taste only
- B. Transient warmth without hives
- C. Mild localized itching alone
- D. Respiratory distress with hypotension

10. What is the best response to suspected contrast extravasation?

- A. Increase injection pressure briefly
- B. Massage the site forcefully
- C. Stop injection and assess the site
- D. Continue until the dose is delivered

11. Which transfer aid is best for a non-weight-bearing patient moving laterally?

- A. A cane held on the weak side
- B. A friction-reducing transfer device
- C. A standing pivot without help
- D. A narrow step stool at bedside

12. What is medical asepsis intended to accomplish?

- A. Reduce the number and spread of microorganisms
- B. Destroy every microbial spore
- C. Create a sterile surgical field

D. Replace standard precautions

13. Which practice follows Standard Precautions?

- A. Use gloves only for known infections
- B. Treat blood and body fluids as potentially infectious
- C. Recap needles before disposal
- D. Separate patients by diagnosis alone

14. A patient reports dizziness when first sitting up. What should the radiographer do?

- A. Ask the patient to stand quickly
- B. Leave the patient sitting unattended
- C. Continue the transfer without reassessment
- D. Pause and support the patient securely

15. Which action demonstrates accurate documentation?

- A. Record objective facts and actions promptly
- B. Delete an error without an audit trail
- C. Chart an event before it occurs
- D. Use vague conclusions instead of observations

16. For a patient with suspected airborne tuberculosis, which protection is appropriate?

- A. Wear only clean examination gloves
- B. Use a surgical cap as respiratory protection
- C. Use an appropriate respirator and airborne precautions
- D. Apply contact precautions alone

17. Before administering contrast, which history is most directly relevant?

- A. Favorite foods and sleep schedule
- B. Dominant hand and shoe size
- C. Prior contrast reactions and current renal information
- D. Preferred television program

18. During routine imaging, before beginning any examination, what is the safest patient-identification method?

- A. Use two approved identifiers
- B. Confirm only the room number
- C. Ask another patient to identify them
- D. Rely on the requisition photograph

19. During routine imaging, which action best preserves confidentiality when discussing an examination?

- A. Discuss details in a public elevator
- B. Speak privately with involved staff
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20. During routine imaging, a competent adult refuses an ordered radiograph. What should the radiographer do first?

- A. Restrain the patient for the exposure
- B. Ask a family member to consent
- C. Proceed because the order is signed
- D. Stop and notify the responsible provider

21. During routine imaging, which technique is most appropriate for a patient with limited English proficiency?

- A. Use a minor child as interpreter
- B. Speak louder using technical terms
- C. Use a qualified medical interpreter
- D. Obtain consent through gestures alone

22. During routine imaging, after removing gloves, what infection-control action remains required?

- A. Touch clean supplies before washing
- B. Perform hand hygiene promptly
- C. Reuse gloves if visibly clean
- D. Apply lotion instead of washing

23. During routine imaging, which item belongs in a sharps container immediately after use?

- A. An uncapped contaminated needle
- B. A blood-soiled disposable sheet
- C. An empty contrast bottle
- D. A used nonsharp tourniquet

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- A. Complete all remaining projections
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- B. Create a sterile surgical field
- C. Replace standard precautions
- D. Reduce the number and spread of microorganisms

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33. During routine imaging, for a patient with suspected airborne tuberculosis, which protection is appropriate?

- A. Wear only clean examination gloves
- B. Use an appropriate respirator and airborne precautions

- C. Use a surgical cap as respiratory protection
- D. Apply contact precautions alone

34. Which interaction is the main source of occupational scatter in diagnostic radiography?

- A. Pair production in the detector
- B. Photodisintegration in the tube
- C. Compton scattering in the patient
- D. Coherent emission from the collimator

35. Increasing distance from a point radiation source reduces intensity according to which principle?

- A. The inverse square law
- B. The line-focus principle
- C. The anode heel effect
- D. The reciprocity law

36. What is the primary purpose of collimation?

- A. Increase focal-spot size
- B. Raise tube leakage radiation
- C. Eliminate all image noise
- D. Limit irradiated tissue and scatter

37. Added filtration primarily removes which photons?

- A. Low-energy photons unlikely to reach the detector
- B. High-energy photons forming the image
- C. All scattered photons after the patient
- D. Characteristic photons from the detector

38. Which quantity is measured in gray?

- A. Equivalent dose
- B. Absorbed dose
- C. Radioactivity
- D. Electrical exposure

39. Which quantity is measured in sievert?

- A. Absorbed energy only
- B. Tube current
- C. Air pressure
- D. Equivalent or effective dose

40. Which cells are generally most radiosensitive?

- A. Mature neurons that rarely divide
- B. Adipocytes with low metabolism
- C. Rapidly dividing, less differentiated cells
- D. Dense collagen fibers

41. A stochastic radiation effect is characterized by what relationship?

- A. Severity alone increases above a threshold
- B. It occurs only after massive exposure
- C. It is completely independent of dose
- D. Probability increases with dose without an assumed threshold

42. What does a personnel dosimeter measure?

- A. Instantaneous patient skin temperature
- B. Occupational exposure received by the wearer
- C. Tube housing leakage directly
- D. Detector exposure index only

43. Where should a single dosimeter be worn during routine radiography?

- A. At the ankle beneath the shoe
- B. On the control panel
- C. At the collar outside protective apparel
- D. Inside a supply cabinet

44. During mobile radiography, where should the operator stand when feasible?

- A. As far away as practical and out of the beam
- B. Directly beside the tube port
- C. In the primary beam behind the patient
- D. With hands on the collimator

45. What change usually reduces fluoroscopic patient dose?

- A. Select magnification mode continuously
- B. Use pulsed fluoroscopy and minimize beam-on time
- C. Move the detector farther from the patient
- D. Increase source-to-patient proximity

46. Why should the fluoroscopic detector be positioned close to the patient?

- A. It reduces magnification and dose demand
- B. It increases scatter toward staff
- C. It requires higher output automatically

D. It enlarges the exposed field

47. What is the effect of increasing source-to-skin distance in fluoroscopy?

- A. It always increases geometric blur
- B. It eliminates internal scatter
- C. It increases patient magnification
- D. It generally lowers entrance skin dose

48. Which factor controls x-ray photon quantity most directly?

- A. kVp alone
- B. Focal spot angle
- C. mAs
- D. Anode rotation speed

49. Which factor most directly influences x-ray beam quality?

- A. mAs
- B. kVp
- C. Exposure time alone
- D. Receptor matrix size

50. What is the safest first step after learning a patient may be pregnant?

- A. Cancel every examination automatically
- B. Proceed without documenting the information
- C. Ask another patient for advice
- D. Follow facility policy and clarify clinical information before exposure

51. What does ALARA direct radiographers to do?

- A. Keep occupational exposure as low as reasonably achievable
- B. Use the highest technique for every patient
- C. Eliminate all medically indicated imaging
- D. Rely on shielding as the only control

52. Which tissue interaction contributes most to subject contrast?

- A. Uniform photon transmission
- B. Tube housing leakage
- C. Differential attenuation
- D. Electronic monitor brightness

53. What is a deterministic tissue reaction?

- A. An effect with no threshold and fixed severity
- B. An effect with a threshold whose severity rises with dose
- C. An inherited effect unrelated to dose
- D. A detector artifact caused by scatter

54. During routine imaging, which interaction is the main source of occupational scatter in diagnostic radiography?

- A. Compton scattering in the patient
- B. Pair production in the detector
- C. Photodisintegration in the tube
- D. Coherent emission from the collimator

55. During routine imaging, increasing distance from a point radiation source reduces intensity according to which principle?

- A. The line-focus principle
- B. The anode heel effect
- C. The inverse square law
- D. The reciprocity law

56. During routine imaging, what is the primary purpose of collimation?

- A. Increase focal-spot size
- B. Raise tube leakage radiation
- C. Eliminate all image noise
- D. Limit irradiated tissue and scatter

57. During routine imaging, added filtration primarily removes which photons?

- A. Low-energy photons unlikely to reach the detector
- B. High-energy photons forming the image
- C. All scattered photons after the patient
- D. Characteristic photons from the detector

58. During routine imaging, which quantity is measured in gray?

- A. Equivalent dose
- B. Radioactivity
- C. Electrical exposure
- D. Absorbed dose

59. During routine imaging, which quantity is measured in sievert?

- A. Absorbed energy only

- B. Equivalent or effective dose
- C. Tube current
- D. Air pressure

60. During routine imaging, which cells are generally most radiosensitive?

- A. Mature neurons that rarely divide
- B. Adipocytes with low metabolism
- C. Rapidly dividing, less differentiated cells
- D. Dense collagen fibers

61. During routine imaging, a stochastic radiation effect is characterized by what relationship?

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- B. Tube housing leakage directly
- C. Occupational exposure received by the wearer
- D. Detector exposure index only

63. During routine imaging, where should a single dosimeter be worn during routine radiography?

- A. At the collar outside protective apparel
- B. At the ankle beneath the shoe
- C. On the control panel
- D. Inside a supply cabinet

64. During routine imaging, during mobile radiography, where should the operator stand when feasible?

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- A. At the ankle beneath the shoe
- B. On the control panel
- C. Inside a supply cabinet
- D. At the collar outside protective apparel

84. Which change most directly reduces motion blur?

- A. Increase object-to-image distance
- B. Use a larger focal spot
- C. Shorten exposure time
- D. Decrease source-to-image distance

85. What happens to recorded detail when object-to-image distance increases?

- A. Spatial resolution always increases
- B. Scatter is completely eliminated
- C. Spatial resolution decreases
- D. The focal spot becomes smaller

86. Which geometric change reduces magnification?

- A. Increase object-to-image distance
- B. Increase source-to-image distance
- C. Use a larger focal spot
- D. Angle the receptor away from the part

87. What is the purpose of a radiographic grid?

- A. Increase the quantity of remnant scatter
- B. Reduce primary-beam penetration
- C. Replace the need for collimation
- D. Absorb scatter before it reaches the detector

88. Grid cutoff is most likely with which error?

- A. A focused grid used off-center
- B. Correct centering at the stated SID
- C. A parallel grid used on a small field
- D. Accurate tube-grid alignment

89. Which digital factor chiefly controls the number of available gray shades?

- A. Bit depth
- B. Pixel pitch alone
- C. Focal spot size
- D. Tube rotation speed

90. What does a smaller pixel size generally improve?

- A. Patient positioning accuracy automatically
- B. Tube heat capacity
- C. Spatial resolution
- D. Subject contrast exclusively

91. What does detective quantum efficiency describe?

- A. How quickly the tube rotor turns
- B. How much anatomy is magnified
- C. How long images remain in PACS
- D. How efficiently a detector preserves signal relative to noise

92. Quantum mottle is most associated with what condition?

- A. Excessive monitor luminance
- B. Insufficient photons reaching the detector
- C. A receptor positioned too close
- D. An overly small matrix

93. What is exposure creep in digital radiography?

- A. Gradual technique increases masked by image processing
- B. Immediate tube failure after one exposure
- C. Loss of all image metadata

D. A decrease in detector dynamic range over minutes

94. What is the main function of automatic exposure control?

- A. Choose the correct patient identity
- B. Select the anatomic projection
- C. Eliminate the need for positioning
- D. Terminate exposure after sufficient detector signal

95. If anatomy does not cover a selected AEC chamber, what may occur?

- A. Guaranteed optimal receptor exposure
- B. Longer exposure from excessive absorption
- C. Premature termination and underexposure
- D. Automatic correction of positioning

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

- A. Overall brightness or level
- B. Displayed contrast
- C. Detector element size
- D. X-ray tube current

97. What does window level primarily control?

- A. Spatial resolution
- B. Patient dose directly
- C. Displayed brightness
- D. Grid frequency

98. Which action is appropriate when electronic cropping would hide anatomy?

- A. Repeat only if required after correcting acquisition
- B. Crop the anatomy and submit the image
- C. Alter the exposure indicator manually
- D. Erase the original image record

99. What does PACS primarily provide?

- A. Generation of tube voltage
- B. Sterilization of detectors
- C. Automatic patient consent
- D. Storage, retrieval, and distribution of images

100. What is DICOM used for?

- A. Calculating occupational dose limits
- B. Standardized communication of medical images and information
- C. Controlling oxygen flow
- D. Measuring focal spot size mechanically

101. A dead detector element most commonly produces what artifact?

- A. Uniform magnification of anatomy
- B. Increased subject contrast
- C. Motion blur across all structures
- D. A fixed line or pixel defect

102. What is the anode heel effect?

- A. Equal intensity at every point in the field
- B. Greater intensity on the cathode side of the beam
- C. Greater intensity on the anode side
- D. A grid artifact from reversed orientation

103. Which focal spot provides better spatial resolution when tube loading permits?

- A. The smaller focal spot
- B. The larger focal spot
- C. Either focal spot with no difference
- D. A focal spot selected by PACS

104. During routine imaging, which change most directly reduces motion blur?

- A. Increase object-to-image distance
- B. Use a larger focal spot
- C. Shorten exposure time
- D. Decrease source-to-image distance

105. During routine imaging, what happens to recorded detail when object-to-image distance increases?

- A. Spatial resolution always increases
- B. Scatter is completely eliminated
- C. The focal spot becomes smaller
- D. Spatial resolution decreases

106. During routine imaging, which geometric change reduces magnification?

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- A. A focused grid used off-center
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109. During routine imaging, which digital factor chiefly controls the number of available gray shades?

- A. Pixel pitch alone
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- A. How quickly the tube rotor turns
- B. How efficiently a detector preserves signal relative to noise
- C. How much anatomy is magnified
- D. How long images remain in PACS

112. During routine imaging, quantum mottle is most associated with what condition?

- A. Excessive monitor luminance
- B. A receptor positioned too close
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124. An entry-level radiographer reviews safe practice. Which change most directly reduces motion blur?

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- C. Terminate exposure after sufficient detector signal
- D. Eliminate the need for positioning

135. For an upright PA chest, where is the central ray centered?

- A. At the xiphoid tip
- B. At T7 on the midsagittal plane
- C. At the iliac crest
- D. At C4 on the midline

136. Why is a PA chest preferred to an AP chest when the patient can stand?

- A. It enlarges the heart shadow
- B. It increases clavicle superimposition
- C. It requires a shorter SID
- D. It reduces heart magnification

137. For a lateral chest, which side is usually placed against the receptor?

- A. The left side
- B. The right side always
- C. The posterior surface
- D. The anterior surface

138. Which breathing instruction is used for an upright chest exposure?

- A. Suspend after forced expiration
- B. Suspend after the second full inspiration
- C. Breathe normally throughout exposure
- D. Perform a Valsalva maneuver

139. For an AP supine abdomen, where is the central ray centered?

- A. At the jugular notch
- B. At the greater trochanters
- C. At the angle of the mandible
- D. At the level of the iliac crests

140. What does an upright abdomen best demonstrate?

- A. The densest renal calculus only

- B. Cervical spine alignment
- C. Air-fluid levels and free intraperitoneal air
- D. Scaphoid fractures

141. If a patient cannot stand for suspected free abdominal air, which projection is preferred?

- A. Right lateral decubitus abdomen
- B. AP axial sacrum
- C. Left lateral decubitus abdomen
- D. Dorsal decubitus sternum

142. Which projection best opens the intervertebral foramina of the cervical spine?

- A. A cervical oblique projection
- B. An AP open-mouth projection
- C. A lateral sternum projection
- D. A PA chest projection

143. What anatomy is demonstrated by the AP open-mouth projection?

- A. Lower thoracic vertebrae
- B. C1, C2, and the dens
- C. Sacral foramina only
- D. Temporomandibular joints only

144. Which projection is used to evaluate cervical instability through motion?

- A. AP axial clavicle views
- B. Bilateral frog-leg hips
- C. Tangential patella views
- D. Lateral flexion and extension views

145. For an AP axial sacrum, how is the central ray directed?

- A. Cephalad toward the sacrum
- B. Caudad toward the coccyx
- C. Horizontally through T7
- D. Tangentially to the patella

146. For an AP axial coccyx, how is the central ray directed?

- A. Cephalad toward L1
- B. Caudad toward the coccyx
- C. Horizontally through the hips
- D. Medially through the knee

147. Which hip projection is generally contraindicated with suspected fracture?

- A. Cross-table lateral hip
- B. AP pelvis without rotation
- C. Trauma AP hip
- D. Frog-leg lateral hip

148. Which projection is preferred for a trauma lateral hip?

- A. Frog-leg lateral
- B. Weight-bearing AP
- C. Cross-table lateral
- D. Modified Cleaves bilateral

149. How should the lower limbs be positioned for a routine AP pelvis when trauma is absent?

- A. Externally rotate them about 45 degrees
- B. Internally rotate them about 15 to 20 degrees
- C. Flex both knees fully
- D. Abduct both femora maximally

150. Which shoulder projection demonstrates the glenoid cavity in profile?

- A. AP oblique Grashey projection
- B. AP axial clavicle projection
- C. Inferosuperior calcaneus projection
- D. PA oblique hand projection

151. Which projection demonstrates the scapulohumeral relationship in suspected dislocation?

- A. AP bilateral AC joints only
- B. PA wrist projection
- C. Lateral sternum projection
- D. Scapular Y projection

152. Which wrist position best demonstrates the scaphoid?

- A. PA with radial deviation
- B. AP with elbow flexion
- C. PA with ulnar deviation
- D. Lateral with fingers extended

153. For a true lateral elbow, what positioning relationship is essential?

- A. The hand is fully pronated

- B. The humerus is angled 45 degrees
- C. Shoulder, elbow, and wrist lie in one plane
- D. The wrist is elevated above the shoulder

154. Which projection best demonstrates the radial head free of ulna superimposition?

- A. AP oblique elbow with lateral rotation
- B. AP oblique elbow with medial rotation
- C. PA axial clavicle
- D. Tangential patella

155. Which knee projection demonstrates the intercondylar fossa?

- A. A sunrise projection
- B. An AP ankle projection
- C. A lateral femur projection
- D. A tunnel projection

156. Which knee projection demonstrates the patellofemoral joint tangentially?

- A. A tunnel projection
- B. A sunrise or skyline projection
- C. An AP weight-bearing foot
- D. A lateral tibia projection

157. For a mortise ankle, how is the leg rotated?

- A. Externally about 45 degrees
- B. Internally about 60 degrees
- C. Not rotated from a lateral position
- D. Internally about 15 to 20 degrees

158. Which foot projection best demonstrates the longitudinal arch under load?

- A. Weight-bearing lateral foot
- B. Non-weight-bearing AP foot
- C. Tangential calcaneus
- D. AP oblique ankle

159. For an AP axial clavicle, where is the central ray directed?

- A. Caudad through the sternum
- B. Horizontally through the elbow
- C. Cephalad through the midclavicle
- D. Medially through the wrist

160. Which projection profiles the zygomatic arches with minimal superimposition?

- A. AP open-mouth projection
- B. Submentovertex projection
- C. Lateral cervical spine
- D. PA axial chest

161. Which skull projection demonstrates the occipital bone and foramen magnum?

- A. PA Caldwell projection
- B. Lateral nasal bones
- C. Modified Waters projection
- D. AP axial Towne projection

162. Which facial-bone projection best demonstrates the maxillary sinuses?

- A. Parietoacanthial Waters projection
- B. AP axial Towne projection
- C. Lateral lumbar spine
- D. PA hand projection

163. Which projection is commonly used for frontal sinuses and anterior ethmoid air cells?

- A. AP axial coccyx projection
- B. PA axial Caldwell projection
- C. Inferosuperior shoulder
- D. Lateral knee

164. For a lateral lumbar spine, which positioning aid may reduce spinal sag?

- A. A support beneath the ankles only
- B. A weight on the upper shoulder
- C. Support under the waist when needed
- D. A grid placed under the head

165. Which projection demonstrates the lumbar zygapophyseal joints?

- A. AP lumbar projection only
- B. Lumbar oblique projection
- C. Lateral sacrum projection
- D. PA chest projection

166. For ribs above the diaphragm, what breathing instruction is generally used?

- A. Suspend on full expiration

- B. Use rapid shallow breathing
- C. Suspend on full inspiration
- D. Continue quiet breathing

167. For ribs below the diaphragm, what breathing instruction is generally used?

- A. Suspend on full expiration
- B. Suspend on full inspiration
- C. Use a Valsalva maneuver
- D. Breathe normally

168. During routine imaging, for an upright PA chest, where is the central ray centered?

- A. At the xiphoid tip
- B. At the iliac crest
- C. At C4 on the midline
- D. At T7 on the midsagittal plane

169. During routine imaging, why is a PA chest preferred to an AP chest when the patient can stand?

- A. It enlarges the heart shadow
- B. It increases clavicle superimposition
- C. It reduces heart magnification
- D. It requires a shorter SID

170. During routine imaging, for a lateral chest, which side is usually placed against the receptor?

- A. The right side always
- B. The left side
- C. The posterior surface
- D. The anterior surface

171. During routine imaging, which breathing instruction is used for an upright chest exposure?

- A. Suspend after the second full inspiration
- B. Suspend after forced expiration
- C. Breathe normally throughout exposure
- D. Perform a Valsalva maneuver

172. During routine imaging, for an AP supine abdomen, where is the central ray centered?

- A. At the jugular notch
- B. At the greater trochanters
- C. At the angle of the mandible
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173. During routine imaging, what does an upright abdomen best demonstrate?

- A. The densest renal calculus only
- B. Cervical spine alignment
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174. During routine imaging, if a patient cannot stand for suspected free abdominal air, which projection is preferred?

- A. Right lateral decubitus abdomen
- B. Left lateral decubitus abdomen
- C. AP axial sacrum
- D. Dorsal decubitus sternum

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- A. A cervical oblique projection
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- C. A lateral sternum projection
- D. A PA chest projection

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- A. Lower thoracic vertebrae
- B. Sacral foramina only
- C. C1, C2, and the dens
- D. Temporomandibular joints only

177. During routine imaging, which projection is used to evaluate cervical instability through motion?

- A. AP axial clavicle views
- B. Bilateral frog-leg hips
- C. Tangential patella views
- D. Lateral flexion and extension views

178. During routine imaging, for an AP axial sacrum, how is the central ray directed?

- A. Caudad toward the coccyx
- B. Cephalad toward the sacrum
- C. Horizontally through T7
- D. Tangentially to the patella

179. During routine imaging, for an AP axial coccyx, how is the central ray directed?

- A. Caudad toward the coccyx
- B. Cephalad toward L1
- C. Horizontally through the hips
- D. Medially through the knee

180. During routine imaging, which hip projection is generally contraindicated with suspected fracture?

- A. Cross-table lateral hip
- B. Frog-leg lateral hip
- C. AP pelvis without rotation
- D. Trauma AP hip

181. During routine imaging, which projection is preferred for a trauma lateral hip?

- A. Frog-leg lateral
- B. Weight-bearing AP
- C. Cross-table lateral
- D. Modified Cleaves bilateral

182. During routine imaging, how should the lower limbs be positioned for a routine AP pelvis when trauma is absent?

- A. Internally rotate them about 15 to 20 degrees
- B. Externally rotate them about 45 degrees
- C. Flex both knees fully
- D. Abduct both femora maximally

183. During routine imaging, which shoulder projection demonstrates the glenoid cavity in profile?

- A. AP axial clavicle projection
- B. Inferosuperior calcaneus projection
- C. AP oblique Grashey projection
- D. PA oblique hand projection

184. During routine imaging, which projection demonstrates the scapulohumeral relationship in suspected dislocation?

- A. AP bilateral AC joints only
- B. PA wrist projection
- C. Lateral sternum projection
- D. Scapular Y projection

185. During routine imaging, which wrist position best demonstrates the scaphoid?

- A. PA with radial deviation
- B. PA with ulnar deviation
- C. AP with elbow flexion
- D. Lateral with fingers extended

186. During routine imaging, for a true lateral elbow, what positioning relationship is essential?

- A. The hand is fully pronated
- B. The humerus is angled 45 degrees
- C. The wrist is elevated above the shoulder
- D. Shoulder, elbow, and wrist lie in one plane

187. During routine imaging, which projection best demonstrates the radial head free of ulna superimposition?

- A. AP oblique elbow with medial rotation

- B. PA axial clavicle
- C. AP oblique elbow with lateral rotation
- D. Tangential patella

188. During routine imaging, which knee projection demonstrates the intercondylar fossa?

- A. A tunnel projection
- B. A sunrise projection
- C. An AP ankle projection
- D. A lateral femur projection

189. During routine imaging, which knee projection demonstrates the patellofemoral joint tangentially?

- A. A tunnel projection
- B. An AP weight-bearing foot
- C. A sunrise or skyline projection
- D. A lateral tibia projection

190. During routine imaging, for a mortise ankle, how is the leg rotated?

- A. Externally about 45 degrees
- B. Internally about 15 to 20 degrees
- C. Internally about 60 degrees
- D. Not rotated from a lateral position

191. During routine imaging, which foot projection best demonstrates the longitudinal arch under load?

- A. Weight-bearing lateral foot
- B. Non-weight-bearing AP foot
- C. Tangential calcaneus
- D. AP oblique ankle

192. During routine imaging, for an AP axial clavicle, where is the central ray directed?

- A. Caudad through the sternum
- B. Horizontally through the elbow
- C. Medially through the wrist
- D. Cephalad through the midclavicle

193. During routine imaging, which projection profiles the zygomatic arches with minimal superimposition?

- A. AP open-mouth projection
- B. Submentovertex projection
- C. Lateral cervical spine
- D. PA axial chest

194. During routine imaging, which skull projection demonstrates the occipital bone and foramen magnum?

- A. PA Caldwell projection
- B. Lateral nasal bones
- C. AP axial Towne projection
- D. Modified Waters projection

195. During routine imaging, which facial-bone projection best demonstrates the maxillary sinuses?

- A. Parietoacanthial Waters projection
- B. AP axial Towne projection
- C. Lateral lumbar spine
- D. PA hand projection

196. During routine imaging, which projection is commonly used for frontal sinuses and anterior ethmoid air cells?

- A. AP axial coccyx projection
- B. Inferosuperior shoulder
- C. Lateral knee
- D. PA axial Caldwell projection

197. During routine imaging, for a lateral lumbar spine, which positioning aid may reduce spinal sag?

- A. A support beneath the ankles only
- B. A weight on the upper shoulder
- C. Support under the waist when needed
- D. A grid placed under the head

198. During routine imaging, which projection demonstrates the lumbar zygapophyseal joints?

- A. AP lumbar projection only
- B. Lumbar oblique projection
- C. Lateral sacrum projection
- D. PA chest projection

199. During routine imaging, for ribs above the diaphragm, what breathing instruction is generally used?

- A. Suspend on full expiration
- B. Use rapid shallow breathing
- C. Continue quiet breathing
- D. Suspend on full inspiration

200. During routine imaging, for ribs below the diaphragm, what breathing instruction is generally used?

- A. Suspend on full expiration
- B. Suspend on full inspiration
- C. Use a Valsalva maneuver
- D. Breathe normally

Practice Exam 4: Answer Key and Explanations

1. C — Two independent identifiers link the correct person to the correct order and reduce wrong-patient events. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

2. B — Protected health information should be disclosed only to authorized people in a setting that limits incidental exposure. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

3. D — A competent patient may refuse care; coercion or substituted consent does not override that decision. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

4. A — A qualified interpreter supports accurate communication, informed consent, and patient autonomy without placing responsibility on relatives. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

5. B — Gloves reduce contamination but do not replace hand hygiene because microscopic defects and removal can contaminate hands. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

6. D — Needles require puncture-resistant sharps disposal without recapping to prevent needlestick injury and bloodborne exposure. This makes the keyed choice the single best response. Each distractor

either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

7. C — These findings may indicate hypoglycemia or another acute problem, so assessment and activation of appropriate help take priority. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

8. A — The radiographer should protect the head, clear hazards, maintain the airway when possible, and never force objects into the mouth. This makes the keyed choice the best response. The distractors contradict the governing principle, describe an unsafe action, or address a different objective. Recognizing the distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

9. D — Airway compromise and hypotension indicate a potentially life-threatening systemic reaction requiring emergency response. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

10. C — Stopping administration limits tissue exposure; the site and patient then require assessment, elevation or other protocol-based care, and documentation. This makes the keyed choice the best response. The distractors contradict the governing principle, describe an unsafe action, or address a different objective. Recognizing the distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

11. B — A lateral transfer device reduces shear and caregiver strain when the patient cannot safely bear weight. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

12. A — Medical asepsis lowers microbial burden and interrupts transmission; sterilization is the process that destroys all forms, including spores. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

13. B — Standard Precautions apply based on anticipated exposure rather than whether an infection has already been diagnosed. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

14. D — Pausing allows assessment for orthostatic intolerance and prevents a fall while the patient is supported. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

15. A — Timely objective documentation creates an accurate clinical and legal record while preserving corrections and auditability. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

16. C — Airborne particles require a fit-tested respirator and the facility measures used for airborne isolation. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

17. C — Prior reactions help estimate immediate risk, while renal information may affect the appropriateness of iodinated contrast. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

18. A — Two independent identifiers link the correct person to the correct order and reduce wrong-patient events. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

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21. C — A qualified interpreter supports accurate communication, informed consent, and patient autonomy without placing responsibility on relatives. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective

action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

22. B — Gloves reduce contamination but do not replace hand hygiene because microscopic defects and removal can contaminate hands. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

23. A — Needles require puncture-resistant sharps disposal without recapping to prevent needlestick injury and bloodborne exposure. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

24. D — These findings may indicate hypoglycemia or another acute problem, so assessment and activation of appropriate help take priority. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

25. C — The radiographer should protect the head, clear hazards, maintain the airway when possible, and never force objects into the mouth. This makes the keyed choice the best response. The distractors contradict the governing principle, describe an unsafe action, or address a different objective. Recognizing the distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

26. B — Airway compromise and hypotension indicate a potentially life-threatening systemic reaction requiring emergency response. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

27. D — Stopping administration limits tissue exposure; the site and patient then require assessment, elevation or other protocol-based care, and documentation. This makes the keyed choice the best response. The distractors contradict the governing principle, describe an unsafe action, or address a different objective. Recognizing the distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

28. A — A lateral transfer device reduces shear and caregiver strain when the patient cannot safely bear weight. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

29. D — Medical asepsis lowers microbial burden and interrupts transmission; sterilization is the process that destroys all forms, including spores. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

30. C — Standard Precautions apply based on anticipated exposure rather than whether an infection has already been diagnosed. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

31. B — Pausing allows assessment for orthostatic intolerance and prevents a fall while the patient is supported. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

32. A — Timely objective documentation creates an accurate clinical and legal record while preserving corrections and auditability. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

33. B — Airborne particles require a fit-tested respirator and the facility measures used for airborne isolation. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

34. C — Compton interactions in the patient redirect photons and create most scatter reaching personnel in diagnostic imaging. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

35. A — Intensity varies inversely with the square of distance, making distance a powerful method of personnel protection. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

36. D — Restricting the beam reduces patient volume exposed and decreases scatter, often improving image contrast. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging

objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

37. A — Low-energy photons add skin dose without useful detector contribution, so filtration hardens the beam. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

38. B — The gray expresses energy deposited per unit mass; equivalent and effective dose use the sievert. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

39. D — The sievert incorporates radiation and sometimes tissue weighting to describe biologically relevant dose. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

40. C — Radiosensitivity is greatest in cells with frequent mitosis and limited differentiation. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

41. D — For stochastic effects such as cancer, dose changes the chance of occurrence rather than the severity. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

42. B — A properly worn dosimeter estimates the worker dose associated with occupational radiation exposure. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

43. C — Collar placement outside the apron monitors exposure to the head and neck and helps estimate occupational dose. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

44. A — Distance and avoiding the primary beam reduce occupational exposure; the patient is also a major scatter source. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

45. B — Pulsed operation and shorter beam-on time reduce the number of radiation pulses delivered. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

46. A — A close detector improves geometry and allows the automatic system to operate without unnecessary output increases. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

47. D — Greater source-to-skin distance spreads the incident beam over a larger area before it reaches skin, reducing intensity. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

48. C — The product of tube current and exposure time controls the number of electrons crossing the tube and therefore photon quantity. This makes the keyed choice the best response. The distractors contradict the governing principle, describe an unsafe action, or address a different objective. Recognizing the distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

49. B — Peak kilovoltage determines electron kinetic energy and strongly influences photon energy and penetration. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

50. D — Pregnancy information requires appropriate verification, communication, and protocol-based risk-benefit handling rather than automatic cancellation. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

51. A — ALARA integrates time, distance, shielding, and sound practice to minimize occupational exposure while accomplishing necessary imaging. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or

addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

52. C — Differences in absorption and scatter among tissues create variations in remnant-beam intensity that form subject contrast. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

53. B — Tissue reactions generally appear only after a threshold dose, and their severity increases as dose rises. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

54. A — Compton interactions in the patient redirect photons and create most scatter reaching personnel in diagnostic imaging. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

55. C — Intensity varies inversely with the square of distance, making distance a powerful method of personnel protection. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

56. D — Restricting the beam reduces patient volume exposed and decreases scatter, often improving image contrast. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

57. A — Low-energy photons add skin dose without useful detector contribution, so filtration hardens the beam. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

58. D — The gray expresses energy deposited per unit mass; equivalent and effective dose use the sievert. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

59. B — The sievert incorporates radiation and sometimes tissue weighting to describe biologically relevant dose. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

60. C — Radiosensitivity is greatest in cells with frequent mitosis and limited differentiation. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

61. D — For stochastic effects such as cancer, dose changes the chance of occurrence rather than the severity. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

62. C — A properly worn dosimeter estimates the worker dose associated with occupational radiation exposure. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

63. A — Collar placement outside the apron monitors exposure to the head and neck and helps estimate occupational dose. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

64. B — Distance and avoiding the primary beam reduce occupational exposure; the patient is also a major scatter source. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

65. A — Pulsed operation and shorter beam-on time reduce the number of radiation pulses delivered. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

66. C — A close detector improves geometry and allows the automatic system to operate without unnecessary output increases. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a

different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

67. B — Greater source-to-skin distance spreads the incident beam over a larger area before it reaches skin, reducing intensity. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

68. D — The product of tube current and exposure time controls the number of electrons crossing the tube and therefore photon quantity. This makes the keyed choice the best response. The distractors contradict the governing principle, describe an unsafe action, or address a different objective. Recognizing the distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

69. A — Peak kilovoltage determines electron kinetic energy and strongly influences photon energy and penetration. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

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85. C — Greater object-to-image distance increases magnification and geometric unsharpness, reducing recorded detail. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

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99. D — PACS manages digital imaging records and makes authorized images available for clinical interpretation and comparison. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

100. B — DICOM supports interoperable formatting and exchange of imaging data among compliant devices and systems. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

101. D — Failed detector elements produce repeatable localized defects that calibration may map or correction algorithms may address. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

102. B — Anode absorption reduces beam intensity on the anode side, leaving relatively greater intensity toward the cathode. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

103. A — A smaller effective focal spot reduces penumbra and improves geometric sharpness. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

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135. B — Centering at approximately T7 includes the lungs from apices through costophrenic angles on a properly positioned chest. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

136. D — Placing the heart nearer the receptor and using a long SID reduces cardiac magnification. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

137. A — A left lateral position places the heart closer to the receptor and limits magnification. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

138. B — Full inspiration depresses the diaphragm and expands the lungs, improving visualization. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

139. D — Iliac crest centering generally includes the abdominal field on a supine KUB projection. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

140. C — A horizontal beam with the patient upright demonstrates air-fluid interfaces and may show free air beneath the diaphragm. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

141. C — The left side down keeps free intraperitoneal air adjacent to the liver, where it is easier to see. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective.

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142. A — Cervical obliques demonstrate foramina by aligning them with the diverging beam. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

143. B — Correct alignment of the teeth and skull base permits visualization of the atlas, axis, and odontoid. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

144. D — Flexion and extension laterals compare alignment through controlled motion when clinically authorized. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

145. A — A cephalad angle compensates for sacral curvature and reduces foreshortening. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

146. B — A modest caudad angle aligns the beam with the coccygeal curvature. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

147. D — Abduction and external rotation for the frog-leg view may displace a fracture and should be avoided. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

148. C — The cross-table lateral demonstrates the hip without moving the injured limb. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

149. B — Internal rotation places the femoral necks more nearly parallel with the receptor. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

150. A — The Grashey position rotates the scapula parallel to the receptor and opens the glenohumeral joint. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

151. D — The scapular Y provides a lateral relationship of the humeral head to the glenoid without major arm movement. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

152. C — Ulnar deviation elongates the scaphoid and reduces superimposition. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

153. C — Keeping the joints level produces a true lateral and proper superimposition of the distal humerus. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

154. A — Lateral rotation places the radial head, neck, and tuberosity in profile. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

155. D — Tunnel methods direct the beam through the intercondylar notch to show the fossa. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

156. B — Tangential patellar views profile the patellofemoral articulation. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports

accurate imaging, appropriate patient management, and defensible entry-level radiographic practice. It also helps prevent avoidable repeat examinations.

157. D — Internal rotation aligns the intermalleolar plane with the receptor and opens the ankle mortise. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

158. A — A weight-bearing lateral shows the functional relationship of the tarsals and longitudinal arch. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

159. C — Cephalad angulation projects the clavicle above the ribs and scapula. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

160. B — The submentovertex projection places the arches nearly perpendicular to the beam and displays them bilaterally. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

161. D — The Towne method projects the dorsum sellae within the foramen magnum when positioning is correct. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

162. A — The Waters position projects the petrous ridges below the maxillary sinuses. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

163. B — The Caldwell method positions the petrous ridges in the lower orbits and demonstrates frontal and anterior ethmoid regions. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

164. C — Supporting the waist helps make the lumbar spine more parallel to the receptor. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

165. B — Lumbar obliques place the zygapophyseal joints of the elevated or dependent side in profile, depending on projection. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

166. C — Inspiration depresses the diaphragm and expands the thorax for upper-rib visualization. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

167. A — Expiration elevates the diaphragm and increases abdominal density, aiding visualization of lower ribs. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

168. D — Centering at approximately T7 includes the lungs from apices through costophrenic angles on a properly positioned chest. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

169. C — Placing the heart nearer the receptor and using a long SID reduces cardiac magnification. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

170. B — A left lateral position places the heart closer to the receptor and limits magnification. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

171. A — Full inspiration depresses the diaphragm and expands the lungs, improving visualization. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective.

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172. D — Iliac crest centering generally includes the abdominal field on a supine KUB projection. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

173. D — A horizontal beam with the patient upright demonstrates air-fluid interfaces and may show free air beneath the diaphragm. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

174. B — The left side down keeps free intraperitoneal air adjacent to the liver, where it is easier to see. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

175. A — Cervical obliques demonstrate foramina by aligning them with the diverging beam. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

176. C — Correct alignment of the teeth and skull base permits visualization of the atlas, axis, and odontoid. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

177. D — Flexion and extension laterals compare alignment through controlled motion when clinically authorized. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

178. B — A cephalad angle compensates for sacral curvature and reduces foreshortening. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

179. A — A modest caudad angle aligns the beam with the coccygeal curvature. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

180. B — Abduction and external rotation for the frog-leg view may displace a fracture and should be avoided. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

181. C — The cross-table lateral demonstrates the hip without moving the injured limb. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

182. A — Internal rotation places the femoral necks more nearly parallel with the receptor. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

183. C — The Grashey position rotates the scapula parallel to the receptor and opens the glenohumeral joint. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

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187. C — Lateral rotation places the radial head, neck, and tuberosity in profile. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

188. A — Tunnel methods direct the beam through the intercondylar notch to show the fossa. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice.

189. C — Tangential patellar views profile the patellofemoral articulation. This makes the keyed choice the single best response. Each distractor either contradicts the governing principle, describes an unsafe or ineffective action, or addresses a different imaging objective. Recognizing this distinction supports accurate imaging, appropriate patient management, and defensible entry-level radiographic practice. It also helps prevent avoidable repeat examinations.

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