

PRACTICE EXAM 3: ARRT RADIOGRAPHY SIMULATION

(200 QUESTIONS)

This practice exam contains 200 scored-style questions. Select the single best answer for each item. For realistic pacing, complete the examination in 230 minutes. ARRT reports scaled scores from 1 to 99; a total scaled score of 75 is required to pass and is not equivalent to 75 percent correct.

- 1.** In a routine clinical setting, which action best verifies a patient before radiography?
 - A. Match two identifiers with the order
 - B. Confirm only the room number
 - C. Ask a relative to identify the patient
 - D. Use the diagnosis as identification

- 2.** In a routine clinical setting, a competent adult withdraws consent immediately before an examination. What should the radiographer do?
 - A. Continue because the order is signed
 - B. Stop and notify the responsible provider
 - C. Ask security to prevent departure
 - D. Sedate the patient to finish

- 3.** In a routine clinical setting, which transfer aid is most appropriate for a non-weight-bearing patient moving from stretcher to table?
 - A. A single-person pivot transfer
 - B. An unsupported gait belt
 - C. A lateral transfer board
 - D. A standing transfer cane

4. In a routine clinical setting, which finding most strongly suggests a severe contrast reaction?

- A. Transient warmth and metallic taste
- B. One small localized hive
- C. Brief nausea without dyspnea
- D. Hypotension with airway compromise

5. In a routine clinical setting, after a needlestick injury, what is the radiographer's first appropriate action?

- A. Squeeze the wound until it bleeds
- B. Finish the shift before reporting
- C. Wash the site and report the exposure
- D. Apply bleach to the puncture

6. In a routine clinical setting, which technique best communicates with a patient who has limited English proficiency?

- A. Rely on a minor child to translate
- B. Speak louder using technical terms
- C. Ask another patient to interpret
- D. Use a qualified medical interpreter

7. In a routine clinical setting, what is the safest response when a standing patient reports sudden dizziness?

- A. Assist the patient to a secure seated position
- B. Tell the patient to remain motionless
- C. Leave to locate the ordering provider
- D. Complete the exposure before helping

8. In a routine clinical setting, which item belongs in a puncture-resistant sharps container?

- A. A blood-stained disposable sheet
- B. A used hollow-bore needle
- C. An empty contrast-media box
- D. An unused alcohol wipe

9. In a routine clinical setting, which action maintains sterile technique during an invasive procedure?

- A. Reach across the sterile field
- B. Turn away from an open sterile tray
- C. Keep sterile items above waist level
- D. Use a wet wrapper as a barrier

10. In a routine clinical setting, a conscious diabetic patient becomes shaky and diaphoretic. What is the most likely problem?

- A. Hypertension
- B. Hypercalcemia
- C. Hyperventilation only
- D. Hypoglycemia

11. During an outpatient examination, which action best verifies a patient before radiography?

- A. Match two identifiers with the order
- B. Confirm only the room number
- C. Ask a relative to identify the patient
- D. Use the diagnosis as identification

12. During an outpatient examination, a competent adult withdraws consent immediately before an examination. What should the radiographer do?

- A. Continue because the order is signed
- B. Ask security to prevent departure
- C. Stop and notify the responsible provider
- D. Sedate the patient to finish

13. During an outpatient examination, which transfer aid is most appropriate for a non-weight-bearing patient moving from stretcher to table?

- A. A single-person pivot transfer
- B. A lateral transfer board
- C. An unsupported gait belt
- D. A standing transfer cane

14. During an outpatient examination, which finding most strongly suggests a severe contrast reaction?

- A. Transient warmth and metallic taste
- B. Hypotension with airway compromise
- C. One small localized hive
- D. Brief nausea without dyspnea

15. During an outpatient examination, after a needlestick injury, what is the radiographer's first appropriate action?

- A. Squeeze the wound until it bleeds
- B. Finish the shift before reporting
- C. Apply bleach to the puncture
- D. Wash the site and report the exposure

16. During an outpatient examination, which technique best communicates with a patient who has limited English proficiency?

- A. Use a qualified medical interpreter
- B. Rely on a minor child to translate
- C. Speak louder using technical terms
- D. Ask another patient to interpret

17. During an outpatient examination, what is the safest response when a standing patient reports sudden dizziness?

- A. Tell the patient to remain motionless
- B. Leave to locate the ordering provider
- C. Complete the exposure before helping
- D. Assist the patient to a secure seated position

18. During an outpatient examination, which item belongs in a puncture-resistant sharps container?

- A. A blood-stained disposable sheet
- B. A used hollow-bore needle
- C. An empty contrast-media box
- D. An unused alcohol wipe

19. During an outpatient examination, which action maintains sterile technique during an invasive procedure?

- A. Keep sterile items above waist level
- B. Reach across the sterile field
- C. Turn away from an open sterile tray
- D. Use a wet wrapper as a barrier

20. During an outpatient examination, a conscious diabetic patient becomes shaky and diaphoretic. What is the most likely problem?

- A. Hypertension
- B. Hypercalcemia
- C. Hypoglycemia
- D. Hyperventilation only

21. While preparing a trauma patient, which action best verifies a patient before radiography?

- A. Confirm only the room number
- B. Ask a relative to identify the patient
- C. Match two identifiers with the order
- D. Use the diagnosis as identification

22. While preparing a trauma patient, a competent adult withdraws consent immediately before an examination. What should the radiographer do?

- A. Stop and notify the responsible provider
- B. Continue because the order is signed
- C. Ask security to prevent departure
- D. Sedate the patient to finish

23. While preparing a trauma patient, which transfer aid is most appropriate for a non-weight-bearing patient moving from stretcher to table?

- A. A single-person pivot transfer
- B. An unsupported gait belt
- C. A standing transfer cane
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24. While preparing a trauma patient, which finding most strongly suggests a severe contrast reaction?

- A. Transient warmth and metallic taste
- B. Hypotension with airway compromise
- C. One small localized hive
- D. Brief nausea without dyspnea

25. While preparing a trauma patient, after a needlestick injury, what is the radiographer's first appropriate action?

- A. Wash the site and report the exposure
- B. Squeeze the wound until it bleeds
- C. Finish the shift before reporting
- D. Apply bleach to the puncture

26. While preparing a trauma patient, which technique best communicates with a patient who has limited English proficiency?

- A. Rely on a minor child to translate
- B. Speak louder using technical terms
- C. Ask another patient to interpret
- D. Use a qualified medical interpreter

27. While preparing a trauma patient, what is the safest response when a standing patient reports sudden dizziness?

- A. Tell the patient to remain motionless
- B. Assist the patient to a secure seated position
- C. Leave to locate the ordering provider
- D. Complete the exposure before helping

28. While preparing a trauma patient, which item belongs in a puncture-resistant sharps container?

- A. A blood-stained disposable sheet
- B. An empty contrast-media box
- C. A used hollow-bore needle
- D. An unused alcohol wipe

29. While preparing a trauma patient, which action maintains sterile technique during an invasive procedure?

- A. Reach across the sterile field
- B. Turn away from an open sterile tray
- C. Use a wet wrapper as a barrier
- D. Keep sterile items above waist level

30. While preparing a trauma patient, a conscious diabetic patient becomes shaky and diaphoretic. What is the most likely problem?

- A. Hypertension
- B. Hypercalcemia
- C. Hypoglycemia
- D. Hyperventilation only

31. During quality review, which action best verifies a patient before radiography?

- A. Match two identifiers with the order
- B. Confirm only the room number
- C. Ask a relative to identify the patient
- D. Use the diagnosis as identification

32. During quality review, a competent adult withdraws consent immediately before an examination. What should the radiographer do?

- A. Continue because the order is signed
- B. Stop and notify the responsible provider
- C. Ask security to prevent departure
- D. Sedate the patient to finish

33. During quality review, which transfer aid is most appropriate for a non-weight-bearing patient moving from stretcher to table?

- A. A lateral transfer board
- B. A single-person pivot transfer
- C. An unsupported gait belt
- D. A standing transfer cane

34. In a routine clinical setting, which interaction produces most diagnostic x-ray photons at the anode?

- A. Pair production
- B. Bremsstrahlung interaction
- C. Coherent scattering
- D. Photodisintegration

35. In a routine clinical setting, which photon interaction is the principal source of occupational scatter in diagnostic imaging?

- A. Photoelectric absorption
- B. Pair production
- C. Compton interaction
- D. Photodisintegration

36. In a routine clinical setting, increasing kVp primarily increases which beam characteristic?

- A. Focal-spot dimensions only
- B. Anode rotation speed only
- C. Filament length only
- D. Photon energy and penetrability

37. In a routine clinical setting, what is the SI unit of absorbed dose?

- A. Gray
- B. Sievert
- C. Coulomb per kilogram
- D. Becquerel

38. In a routine clinical setting, which cells are generally most radiosensitive?

- A. Mature nerve cells
- B. Rapidly dividing, less differentiated cells
- C. Resting skeletal muscle cells
- D. Highly specialized adipocytes

39. In a routine clinical setting, what happens to x-ray intensity when distance from a point source is doubled?

- A. It decreases to one half
- B. It doubles
- C. It increases fourfold
- D. It decreases to one fourth

40. In a routine clinical setting, characteristic radiation occurs when what event happens?

- A. A photon changes direction without ionization
- B. A positron combines with an electron
- C. An outer-shell electron fills an inner-shell vacancy
- D. The nucleus emits an alpha particle

41. In a routine clinical setting, which effect is stochastic rather than deterministic?

- A. Radiation-induced cancer
- B. Skin erythema
- C. Epilation
- D. Lens opacification

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- B. Coherent scattering
- C. Photodisintegration
- D. Bremsstrahlung interaction

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- D. Highly specialized adipocytes

55. In a routine clinical setting, which action most directly reduces patient dose and scatter production?

- A. Increase field size beyond the receptor
- B. Collimate closely to the anatomy of interest
- C. Repeat every image for confirmation
- D. Use magnification mode routinely

56. In a routine clinical setting, where should a personnel dosimeter be worn during routine radiography when no apron is used?

- A. At the ankle under clothing
- B. On the back of the waist
- C. At the collar on the anterior torso
- D. Attached to the control panel

57. In a routine clinical setting, during fluoroscopy with a protective apron, where is the primary dosimeter usually worn?

- A. At the waist beneath the apron only
- B. On the tube housing
- C. Inside a glove near the fingers
- D. At the collar outside the apron

58. In a routine clinical setting, which change reduces fluoroscopic dose most effectively when clinically acceptable?

- A. Activate magnification continuously
- B. Move the patient closer to the tube
- C. Use pulsed fluoroscopy at a lower pulse rate
- D. Remove added filtration

59. In a routine clinical setting, what is the best reason to use last-image hold?

- A. It permits review without additional exposure
- B. It increases spatial resolution automatically
- C. It replaces all required projections
- D. It raises detector exposure for clarity

60. In a routine clinical setting, which protective principle is most effective when assisting a mobile examination?

- A. Stand in the primary beam
- B. Maximize distance from the patient and tube
- C. Hold the receptor without protection
- D. Shorten distance to reduce scatter

61. In a routine clinical setting, why should repeat images be analyzed?

- A. To justify increasing every technique
- B. To remove rejected images from records
- C. To replace equipment quality control
- D. To identify causes and prevent recurrence

62. In a routine clinical setting, which device limits the size and shape of the primary beam?

- A. Light-localizing collimator
- B. Moving grid
- C. Automatic exposure chamber
- D. Image-processing algorithm

63. In a routine clinical setting, which patient group requires especially careful technique adjustment because of greater radiosensitivity?

- A. Healthy middle-aged adults
- B. Adults with healed fractures
- C. Pediatric patients
- D. Patients wearing compression stockings

64. In a routine clinical setting, what should the radiographer do before exposing a potentially pregnant patient when status is uncertain?

- A. Cancel every examination automatically
- B. Follow the facility pregnancy-screening policy
- C. Proceed without documenting the concern
- D. Ask another patient for advice

65. During an outpatient examination, which action most directly reduces patient dose and scatter production?

- A. Increase field size beyond the receptor
- B. Repeat every image for confirmation
- C. Use magnification mode routinely
- D. Collimate closely to the anatomy of interest

66. During an outpatient examination, where should a personnel dosimeter be worn during routine radiography when no apron is used?

- A. At the ankle under clothing
- B. On the back of the waist
- C. At the collar on the anterior torso
- D. Attached to the control panel

67. During an outpatient examination, during fluoroscopy with a protective apron, where is the primary dosimeter usually worn?

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- C. It raises detector exposure for clarity
- D. It permits review without additional exposure

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- B. To justify increasing every technique
- C. To remove rejected images from records
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82. While preparing a trauma patient, which device limits the size and shape of the primary beam?

- A. Moving grid
- B. Automatic exposure chamber
- C. Image-processing algorithm
- D. Light-localizing collimator

83. While preparing a trauma patient, which patient group requires especially careful technique adjustment because of greater radiosensitivity?

- A. Healthy middle-aged adults
- B. Adults with healed fractures
- C. Pediatric patients
- D. Patients wearing compression stockings

84. In a routine clinical setting, which factor primarily controls receptor exposure when other factors remain constant?

- A. SID only
- B. mAs
- C. Focal-spot angle only
- D. Display monitor brightness

85. In a routine clinical setting, increasing OID while other geometry remains unchanged produces what result?

- A. Less magnification and more detail
- B. Greater magnification and unsharpness
- C. No change in image geometry
- D. Higher subject contrast only

86. In a routine clinical setting, which change improves recorded spatial resolution?

- A. Increase patient motion
- B. Increase OID
- C. Use a smaller focal spot
- D. Decrease SID substantially

87. In a routine clinical setting, quantum mottle most commonly indicates what problem?

- A. Insufficient detector exposure
- B. Excessive collimation accuracy
- C. Too much displayed brightness
- D. Excessive spatial resolution

88. In a routine clinical setting, what does an exposure indicator primarily communicate?

- A. The patient's exact absorbed dose
- B. The radiologist's diagnostic confidence
- C. The monitor's luminance calibration
- D. The amount of radiation reaching the detector

89. In a routine clinical setting, which grid characteristic generally improves scatter cleanup but requires more exposure?

- A. A lower grid frequency only
- B. A wider collimated field

- C. A shorter processing cycle
- D. A higher grid ratio

90. In a routine clinical setting, what is the primary effect of patient motion on a radiographic image?

- A. Increased subject contrast
- B. Reduced magnification
- C. Reduced spatial resolution
- D. Increased detector bit depth

91. In a routine clinical setting, which digital-imaging property determines the number of available gray shades?

- A. Bit depth
- B. Pixel pitch
- C. Focal-spot size
- D. Source-to-image distance

92. In a routine clinical setting, what is the purpose of a lookup table in digital image display?

- A. Create x-rays at the anode
- B. Map pixel values to displayed brightness
- C. Physically collimate the beam
- D. Move the tube stand

93. In a routine clinical setting, which practice best avoids exposure-field recognition errors?

- A. Use multiple fields on one receptor
- B. Leave large unexposed borders irregular
- C. Collimate accurately and center the anatomy
- D. Mask anatomy after acquisition

94. During an outpatient examination, which factor primarily controls receptor exposure when other factors remain constant?

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104. While preparing a trauma patient, which factor primarily controls receptor exposure when other factors remain constant?

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105. While preparing a trauma patient, increasing OID while other geometry remains unchanged produces what result?

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110. In a routine clinical setting, what is the purpose of automatic exposure control?

- A. Select the patient's position
- B. Rotate the anode before preparation
- C. Eliminate the need for collimation
- D. Terminate exposure after sufficient detector radiation

111. In a routine clinical setting, which component supplies electrons for x-ray production?

- A. The rotating anode disc
- B. The heated cathode filament
- C. The collimator mirror
- D. The detector scintillator

112. In a routine clinical setting, what is the primary function of the rotating anode?

- A. Distribute heat over a larger target area
- B. Increase patient positioning accuracy
- C. Measure remnant radiation
- D. Control display-window width

113. In a routine clinical setting, what does rectification accomplish in an x-ray circuit?

- A. Magnifies the displayed anatomy
- B. Restricts the radiation field
- C. Measures patient thickness
- D. Allows current to flow in one direction

114. In a routine clinical setting, a light field and radiation field fail alignment testing. What should occur?

- A. Remove or restrict use and report the malfunction
- B. Continue because processing will correct it

- C. Increase field size for all patients
- D. Disable the collimator lamp

115. In a routine clinical setting, which detector maintenance action corrects variations in pixel response?

- A. Increasing monitor brightness
- B. Flat-field calibration
- C. Changing patient position
- D. Opening the collimator fully

116. In a routine clinical setting, what is DICOM primarily used for?

- A. Calculation of tube heat units
- B. Sterilization of image receptors
- C. Standardized communication of medical images
- D. Measurement of occupational dose

117. In a routine clinical setting, what is PACS designed to provide?

- A. Generation of high voltage
- B. Physical restriction of the beam
- C. Automatic patient transport
- D. Storage and distribution of medical images

118. In a routine clinical setting, which test evaluates monitor grayscale performance?

- A. A spinning-top exposure test
- B. A focal-spot pinhole only
- C. A standard grayscale display test pattern
- D. A lead-apron fluoroscopy test

119. In a routine clinical setting, what is the purpose of a backup timer in an AEC system?

- A. Select the active detector chamber
- B. Prevent an excessively long exposure
- C. Improve patient communication
- D. Increase image magnification

120. During an outpatient examination, what is the purpose of automatic exposure control?

- A. Terminate exposure after sufficient detector radiation
- B. Select the patient's position
- C. Rotate the anode before preparation
- D. Eliminate the need for collimation

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- D. Prevent an excessively long exposure

130. While preparing a trauma patient, what is the purpose of automatic exposure control?

- A. Terminate exposure after sufficient detector radiation
- B. Select the patient's position
- C. Rotate the anode before preparation
- D. Eliminate the need for collimation

131. While preparing a trauma patient, which component supplies electrons for x-ray production?

- A. The rotating anode disc
- B. The collimator mirror
- C. The heated cathode filament

D. The detector scintillator

132. While preparing a trauma patient, what is the primary function of the rotating anode?

- A. Increase patient positioning accuracy
- B. Distribute heat over a larger target area
- C. Measure remnant radiation
- D. Control display-window width

133. While preparing a trauma patient, what does rectification accomplish in an x-ray circuit?

- A. Magnifies the displayed anatomy
- B. Restricts the radiation field
- C. Allows current to flow in one direction
- D. Measures patient thickness

134. While preparing a trauma patient, a light field and radiation field fail alignment testing. What should occur?

- A. Continue because processing will correct it
- B. Remove or restrict use and report the malfunction
- C. Increase field size for all patients
- D. Disable the collimator lamp

135. In a routine clinical setting, which projection best demonstrates the odontoid through the open mouth?

- A. Lateral thoracic spine
- B. PA axial skull projection
- C. AP sacrum projection
- D. AP open-mouth projection

136. In a routine clinical setting, for a lateral cervical spine, which instruction helps depress the shoulders?

- A. Relax and lower both shoulders
- B. Elevate the shoulders toward the ears
- C. Flex both knees onto the table
- D. Rotate the head sharply

137. In a routine clinical setting, which projection demonstrates the intervertebral foramina of the cervical spine?

- A. Cervical oblique projection
- B. AP axial clavicle
- C. Lateral sternum
- D. Tangential patella

138. In a routine clinical setting, where is the central ray directed for an AP pelvis?

- A. At the xiphoid process
- B. Midline midway between ASIS and pubic symphysis
- C. At the seventh cervical vertebra
- D. At the distal femoral condyles

139. In a routine clinical setting, which position best demonstrates a unilateral posterior oblique lumbar zygapophyseal joint?

- A. The joint farthest from the receptor
- B. Both joints without rotation
- C. Only the sacroiliac joint
- D. The joint closest to the image receptor

140. In a routine clinical setting, why are the legs internally rotated for a routine AP pelvis when trauma is absent?

- A. To open the sacroiliac joints
- B. To demonstrate the lesser trochanters fully
- C. To place femoral necks parallel to the receptor
- D. To rotate the iliac wings laterally

141. In a routine clinical setting, which projection demonstrates the sacroiliac joint farthest from the receptor?

- A. AP axial coccyx
- B. Lateral lumbar projection
- C. Posterior oblique SI-joint projection
- D. PA chest projection

142. In a routine clinical setting, for an AP axial sacrum, the central ray is angled in which direction?

- A. Caudad
- B. Cephalad
- C. Horizontally toward the feet
- D. Laterally across the pelvis

143. During an outpatient examination, which projection best demonstrates the odontoid through the open mouth?

- A. AP open-mouth projection
- B. Lateral thoracic spine
- C. PA axial skull projection
- D. AP sacrum projection

144. During an outpatient examination, for a lateral cervical spine, which instruction helps depress the shoulders?

- A. Elevate the shoulders toward the ears
- B. Flex both knees onto the table
- C. Rotate the head sharply
- D. Relax and lower both shoulders

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- A. Lateral thoracic spine
- B. AP open-mouth projection
- C. PA axial skull projection

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- A. Elevate the shoulders toward the ears
- B. Flex both knees onto the table
- C. Rotate the head sharply
- D. Relax and lower both shoulders

153. In a routine clinical setting, why is an upright PA chest preferred when the patient can stand?

- A. It enlarges the heart intentionally
- B. It closes the costophrenic angles
- C. It increases OID of the thorax
- D. It reduces cardiac magnification

154. In a routine clinical setting, which respiration instruction is used for a routine chest exposure?

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

155. In a routine clinical setting, which position best demonstrates a small pleural effusion?

- A. Supine AP with affected side up
- B. Prone PA after expiration
- C. Lateral decubitus with affected side down
- D. Upright lordotic position only

156. In a routine clinical setting, which abdominal projection is most useful for free intraperitoneal air when the patient cannot stand?

- A. Left lateral decubitus with horizontal beam
- B. Right lateral decubitus with vertical beam
- C. Supine AP with vertical beam
- D. Prone PA with cephalad angle

157. In a routine clinical setting, where is the central ray centered for a supine AP abdomen?

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

158. In a routine clinical setting, which projection best demonstrates the pulmonary apices free of clavicular superimposition?

- A. AP axial lordotic chest
- B. Lateral decubitus abdomen
- C. PA oblique sternum
- D. AP axial coccyx

159. In a routine clinical setting, for an upper GI examination, which contrast is contraindicated when perforation is suspected?

- A. Water-soluble iodinated contrast
- B. Room air as negative contrast
- C. A provider-approved soluble agent
- D. Barium sulfate

160. In a routine clinical setting, which position places the heart closest to the receptor for a lateral chest?

- A. Right lateral position
- B. Supine AP position
- C. Left lateral position
- D. Dorsal decubitus position

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- A. Left lateral decubitus with horizontal beam
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- C. Supine AP with vertical beam
- D. Prone PA with cephalad angle

173. In a routine clinical setting, which projection best demonstrates the scaphoid with reduced foreshortening?

- A. AP wrist with radial deviation
- B. Lateral elbow in extension
- C. Tangential patella projection
- D. PA wrist with ulnar deviation

174. In a routine clinical setting, for a true lateral elbow, how should the humeral epicondyles be positioned?

- A. Parallel to the image receptor
- B. Perpendicular to the image receptor
- C. Rotated forty-five degrees
- D. Superimposed on the radial head

175. In a routine clinical setting, which shoulder projection demonstrates the glenoid cavity in profile?

- A. AP oblique Grashey projection
- B. AP axial clavicle
- C. PA wrist projection
- D. Lateral calcaneus projection

176. In a routine clinical setting, which projection demonstrates the intercondylar fossa of the knee?

- A. AP ankle projection
- B. Lateral forearm projection
- C. Tunnel projection
- D. PA hand projection

177. In a routine clinical setting, for an AP ankle, what rotation produces an open mortise?

- A. Fifteen to twenty degrees medial rotation
- B. Forty-five degrees lateral rotation
- C. Ninety degrees medial rotation
- D. No rotation with plantar flexion

178. In a routine clinical setting, which projection best demonstrates the calcaneus without superimposition by the talus?

- A. AP axial knee
- B. Plantodorsal axial calcaneus
- C. PA oblique hand
- D. Lateral scapula

179. In a routine clinical setting, for an AP humerus, which joints must be included?

- A. Wrist and elbow joints
- B. Hip and knee joints
- C. Shoulder and elbow joints
- D. Ankle and knee joints

180. In a routine clinical setting, which projection best demonstrates the radial head with minimal ulnar superimposition?

- A. AP oblique elbow with medial rotation
- B. Lateral wrist in flexion
- C. PA axial clavicle
- D. AP oblique elbow with lateral rotation

181. In a routine clinical setting, which position is required for a routine lateral knee?

- A. Knee fully hyperextended
- B. Knee flexed about twenty to thirty degrees
- C. Leg rotated forty-five degrees externally
- D. Foot maximally plantar flexed

182. In a routine clinical setting, which projection demonstrates the carpal canal?

- A. Tangential inferosuperior wrist projection
- B. PA axial skull projection
- C. AP axial sacrum projection
- D. Lateral chest projection

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Practice Exam 3: Answer Key and Explanations

1. **A** — Two independent identifiers reduce wrong-patient errors and must agree with the imaging order before exposure. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.
2. **B** — A competent patient may withdraw consent at any time; proceeding could constitute battery. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.
3. **C** — A lateral transfer board supports a horizontal move and reduces lifting risk when the patient cannot bear weight. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.
4. **D** — Airway compromise and hypotension indicate a life-threatening systemic reaction requiring immediate emergency response. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.
5. **C** — Immediate cleansing and prompt reporting activate the facility's exposure-control evaluation and follow-up process. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.
6. **D** — A qualified interpreter supports accurate informed communication, privacy, and patient understanding without burdening family members. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.
7. **A** — Preventing a fall takes priority; the patient should be supported and lowered or seated safely before further assessment. The correct choice fits the relevant mechanism, safety principle, or

positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

8. B — Used needles create a percutaneous injury risk and must be discarded immediately in an approved sharps container. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

9. C — Sterile items remain in view and above waist level; reaching, turning away, or moisture can contaminate the field. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

10. D — Shakiness and diaphoresis are classic adrenergic signs of low blood glucose and warrant rapid assessment and treatment per protocol. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

11. A — Two independent identifiers reduce wrong-patient errors and must agree with the imaging order before exposure. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

12. C — A competent patient may withdraw consent at any time; proceeding could constitute battery. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

13. B — A lateral transfer board supports a horizontal move and reduces lifting risk when the patient cannot bear weight. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

14. B — Airway compromise and hypotension indicate a life-threatening systemic reaction requiring immediate emergency response. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

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26. D — A qualified interpreter supports accurate informed communication, privacy, and patient understanding without burdening family members. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

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34. B — Bremsstrahlung results when high-speed electrons are decelerated by the nuclear field of target atoms. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

35. C — Compton interactions eject outer-shell electrons and redirect photons, creating scatter that can reach personnel. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

36. D — Higher tube potential accelerates electrons more strongly, increasing photon energy and beam penetrability. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

37. A — The gray measures energy imparted per unit mass, whereas the sievert addresses equivalent or effective dose. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

38. B — Radiosensitivity increases with mitotic activity and decreases with cellular differentiation. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation. Apply this reasoning consistently in comparable clinical situations.

39. D — The inverse-square law makes intensity inversely proportional to the square of distance. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation. Apply this reasoning consistently in comparable clinical situations.

40. C — A shell transition releases a photon whose energy equals the difference between electron binding energies. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

41. A — Stochastic effects have no assumed threshold and their probability, rather than severity, rises with dose. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

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47. D — The inverse-square law makes intensity inversely proportional to the square of distance. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation. Apply this reasoning consistently in comparable clinical situations.

48. C — A shell transition releases a photon whose energy equals the difference between electron binding energies. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

49. B — Stochastic effects have no assumed threshold and their probability, rather than severity, rises with dose. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

50. A — Bremsstrahlung results when high-speed electrons are decelerated by the nuclear field of target atoms. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

51. C — Compton interactions eject outer-shell electrons and redirect photons, creating scatter that can reach personnel. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

52. D — Higher tube potential accelerates electrons more strongly, increasing photon energy and beam penetrability. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

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55. B — Tight collimation reduces irradiated tissue volume, patient dose, and the amount of scatter produced. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

56. C — Collar placement estimates exposure to the head and neck and provides consistent monitoring. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

57. D — An outside-collar badge monitors exposure to unshielded head and neck tissues during fluoroscopy. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

58. C — Lower pulse rates reduce beam-on events, while magnification and reduced source-to-skin distance can increase dose. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

59. A — Last-image hold displays the most recent frame without continuing x-ray production. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation. Apply this reasoning consistently in comparable clinical situations.

60. B — Scatter intensity falls rapidly with distance, making distance a powerful personnel-protection measure. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation. Apply this reasoning consistently in comparable clinical situations.

61. D — Repeat analysis reveals positioning, motion, exposure, and equipment trends that can guide corrective action. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

62. A — The collimator uses adjustable lead shutters to restrict the primary beam to the required anatomy. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

63. C — Children have more rapidly dividing tissues and a longer lifetime in which radiation effects may appear. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

64. B — A standardized screening and escalation process balances diagnostic need with fetal dose considerations. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

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68. B — Lower pulse rates reduce beam-on events, while magnification and reduced source-to-skin distance can increase dose. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

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84. B — mAs controls x-ray quantity and therefore strongly affects detector exposure under otherwise unchanged conditions. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

85. B — Greater object-to-image distance enlarges the projected image and increases geometric blur. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation. Apply this reasoning consistently in comparable clinical situations.

86. C — A smaller focal spot reduces geometric unsharpness and improves the visibility of fine detail. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

87. A — Too few detected photons create statistical fluctuation in image signal, producing a mottled appearance. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

88. D — Exposure indicators estimate detector exposure and help identify underexposure or overexposure trends. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation. Apply this reasoning consistently in comparable clinical situations.

89. D — Higher grid ratios remove more oblique scatter but demand more precise alignment and increased technique. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

90. C — Motion spreads structural edges across detector elements, producing blur and loss of recorded detail. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

91. A — Bit depth defines how many discrete intensity values can be represented in a digital image. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

92. B — A lookup table translates stored pixel values into the brightness and contrast shown on the monitor. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

93. C — Accurate collimation and centering help the processing system identify the exposure field and histogram correctly. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

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110. D — AEC chambers measure radiation and end the exposure when a preset detector level is reached. The correct choice fits the relevant mechanism, safety principle, or positioning requirement.

Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

111. B — Thermionic emission releases electrons from the heated tungsten filament at the cathode. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation. Apply this reasoning consistently in comparable clinical situations.

112. A — Rotation spreads electron energy across the focal track, allowing greater tube loading and heat dissipation. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

113. D — Rectification ensures electrons travel from cathode to anode rather than reversing during the exposure. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

114. A — Misalignment can irradiate unintended tissue or exclude anatomy, so the unit requires corrective service. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

115. B — Flat-field calibration normalizes detector-element response and helps prevent nonuniformity artifacts. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation. Apply this reasoning consistently in comparable clinical situations.

116. C — DICOM standardizes image files, metadata, and communication between imaging devices and information systems. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

117. D — PACS supports acquisition, archiving, retrieval, viewing, and distribution of digital imaging studies. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation. Apply this reasoning consistently in comparable clinical situations.

118. C — A grayscale test pattern reveals luminance, contrast, and visibility performance across displayed gray levels. The correct choice fits the relevant mechanism, safety principle, or positioning

requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

119. B — The backup timer terminates exposure if the AEC fails or the selected chamber does not receive adequate radiation. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

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135. D — The open-mouth projection places the dens and lateral masses of C1 within the open oral cavity. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

136. A — Depressing the shoulders improves visualization of the lower cervical vertebrae and cervicothoracic junction. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

137. A — Oblique cervical positioning opens the intervertebral foramina by aligning them with the x-ray beam. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

138. B — This centering includes the pelvic girdle and proximal femora on a properly sized receptor. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

139. D — Posterior oblique lumbar positions demonstrate the zygapophyseal joints on the side nearest the receptor. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

140. C — Internal rotation compensates for femoral neck anteversion and reduces foreshortening of the femoral necks. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

141. C — A posterior oblique pelvis opens the sacroiliac joint on the elevated side, farthest from the receptor. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

142. B — A cephalad angle projects the sacrum without excessive foreshortening and reduces pubic superimposition. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or

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151. B — The open-mouth projection places the dens and lateral masses of C1 within the open oral cavity. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

152. D — Depressing the shoulders improves visualization of the lower cervical vertebrae and cervicothoracic junction. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

153. D — PA positioning places the heart closer to the receptor and reduces magnification compared with an AP projection. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

154. B — Full inspiration expands the lungs, depresses the diaphragm, and improves visualization of pulmonary structures. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

155. C — Fluid layers along the dependent chest wall, making a small effusion visible on a horizontal-beam decubitus image. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

156. A — Free air rises against the right lateral liver margin when the patient lies on the left side. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

157. B — Centering at the iliac crests generally includes the kidneys, ureters, bladder region, and abdominal soft tissues. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

158. A — The lordotic position projects the clavicles above the apices, improving visualization of upper-lung pathology. The correct choice fits the relevant mechanism, safety principle, or positioning

requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

159. D — Escaped barium can cause serious inflammatory complications; a water-soluble agent is generally selected when perforation is suspected. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

160. C — Placing the left side against the receptor reduces cardiac magnification on the lateral chest image. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

161. C — PA positioning places the heart closer to the receptor and reduces magnification compared with an AP projection. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

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173. D — Ulnar deviation extends the scaphoid and helps demonstrate it with less foreshortening. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation. Apply this reasoning consistently in comparable clinical situations.

174. B — A true lateral elbow places the epicondyles perpendicular and superimposes them on the image. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

175. A — The Grashey position rotates the scapula parallel to the receptor and opens the glenohumeral joint space. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

176. C — A tunnel projection directs the beam through the intercondylar notch to display the fossa. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

177. A — Medial rotation aligns the intermalleolar line parallel with the receptor and opens the ankle mortise. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

178. B — The axial calcaneus projection elongates the calcaneus and demonstrates the subtalar region with reduced superimposition. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

179. C — Long-bone imaging includes both adjacent joints so the entire humerus and injury extent are documented. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

180. D — Lateral rotation places the radial head, neck, and tuberosity with less superimposition by the ulna. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

181. B — Moderate flexion helps superimpose the femoral condyles while avoiding excessive tension or distortion. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

182. A — The tangential carpal-canal projection demonstrates the palmar aspects of the carpal bones and hook of hamate. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or

image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

183. D — Ulnar deviation extends the scaphoid and helps demonstrate it with less foreshortening. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation. Apply this reasoning consistently in comparable clinical situations.

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185. B — The Grashey position rotates the scapula parallel to the receptor and opens the glenohumeral joint space. The correct choice fits the relevant mechanism, safety principle, or positioning requirement. Each distractor instead describes a different process, unsafe action, unrelated projection, or image factor. Recognizing this distinction supports safe technique selection and dependable image evaluation.

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