

PRACTICE EXAM 7: ARRT RADIOGRAPHY SIMULATION (200 QUESTIONS)

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

1. While following department protocol, during a routine examination, which finding most strongly suggests an immediate contrast-media reaction requiring rapid assessment?
 - A. Mild anxiety before injection
 - B. A transient sensation of warmth
 - C. A brief metallic taste without other symptoms
 - D. Stridor with increasing respiratory difficulty
2. During an entry-level clinical scenario, during a routine examination, before beginning an examination, which action best verifies the correct patient?
 - A. Ask a family member to identify the patient
 - B. Use two independent patient identifiers
 - C. Compare the patient with the schedule photograph
 - D. Confirm only the room assignment
3. When preparing an adult patient, for an adult patient, which response best demonstrates therapeutic communication with an anxious patient?
 - A. Invite the patient to describe specific concerns
 - B. Change the subject to avoid increasing anxiety
 - C. Promise that the procedure will be painless
 - D. Tell the patient there is nothing to fear
4. During a busy morning shift, according to safe radiographic practice, which measure is most appropriate before moving a patient with an indwelling urinary catheter?
 - A. Clamp the catheter throughout the examination
 - B. Place the bag on the patient's abdomen
 - C. Keep the drainage bag below bladder level
 - D. Disconnect the tubing for easier transfer
5. While completing a trauma workup, which action best protects confidentiality when discussing a patient's imaging history?
 - A. Speak privately only with personnel involved in care
 - B. Discuss the case in a public elevator
 - C. Post a deidentified story with recognizable circumstances
 - D. Share details with a curious coworker

6. In a digital radiography department, in an outpatient setting, a competent adult refuses a medically necessary radiographic examination. What should the radiographer do first?

- A. Ask security to restrain the patient
- B. Obtain consent from the nearest relative
- C. Respect the refusal and notify the responsible provider
- D. Proceed because the examination was ordered

7. Before the next exposure, a patient has a valid advance directive in the chart. What is the radiographer's appropriate role?

- A. Ignore it unless a family member repeats it
- B. Recognize it and promptly communicate relevant wishes
- C. Replace it with the radiographer's treatment preference
- D. Independently interpret all legal implications

8. When evaluating image quality, according to safe radiographic practice, a patient becomes pale and reports dizziness while standing for an upright chest image. What is the priority action?

- A. Leave to obtain the patient's medical record
- B. Ask the patient to take several deep breaths
- C. Complete the exposure before moving the patient
- D. Assist the patient to a safe seated or supine position

9. While following department protocol, in an outpatient setting, when transferring a weak patient from wheelchair to table, what is the safest preliminary action?

- A. Lock the wheelchair and move footrests away
- B. Leave the wheelchair angled away from the table
- C. Ask the patient to stand before explaining the transfer
- D. Pull the patient quickly by both arms

10. During an entry-level clinical scenario, when preparing the room, which information belongs in an objective incident report after a patient fall?

- A. An admission that the department caused the fall
- B. A copy placed directly in the medical record
- C. Speculation about which employee was careless
- D. Observed facts and actions taken after the event

11. When preparing an adult patient, during image acquisition, which practice is part of standard precautions for every patient?

- A. Use sterile gloves for all positioning tasks
- B. Wear an N95 respirator for every interaction
- C. Perform hand hygiene at appropriate care moments
- D. Place every patient in airborne isolation

12. During a busy morning shift, during a routine examination, which finding most strongly suggests an immediate contrast-media reaction requiring rapid assessment?

- A. Mild anxiety before injection
- B. Stridor with increasing respiratory difficulty
- C. A transient sensation of warmth
- D. A brief metallic taste without other symptoms

13. While completing a trauma workup, during a routine examination, before beginning an examination, which action best verifies the correct patient?

- A. Use two independent patient identifiers
- B. Confirm only the room assignment
- C. Compare the patient with the schedule photograph
- D. Ask a family member to identify the patient

14. In a digital radiography department, which response best demonstrates therapeutic communication with an anxious patient?

- A. Promise that the procedure will be painless
- B. Change the subject to avoid increasing anxiety
- C. Tell the patient there is nothing to fear
- D. Invite the patient to describe specific concerns

15. Before the next exposure, according to safe radiographic practice, which measure is most appropriate before moving a patient with an indwelling urinary catheter?

- A. Clamp the catheter throughout the examination
- B. Disconnect the tubing for easier transfer
- C. Keep the drainage bag below bladder level
- D. Place the bag on the patient's abdomen

16. When evaluating image quality, for an adult patient, which action best protects confidentiality when discussing a patient's imaging history?

- A. Share details with a curious coworker
- B. Post a deidentified story with recognizable circumstances
- C. Speak privately only with personnel involved in care
- D. Discuss the case in a public elevator

17. While following department protocol, a competent adult refuses a medically necessary radiographic examination. What should the radiographer do first?

- A. Obtain consent from the nearest relative
- B. Respect the refusal and notify the responsible provider
- C. Ask security to restrain the patient
- D. Proceed because the examination was ordered

18. During an entry-level clinical scenario, during image acquisition, a patient has a valid advance directive in the chart. What is the radiographer's appropriate role?

- A. Ignore it unless a family member repeats it
- B. Replace it with the radiographer's treatment preference
- C. Independently interpret all legal implications
- D. Recognize it and promptly communicate relevant wishes

19. When preparing an adult patient, a patient becomes pale and reports dizziness while standing for an upright chest image. What is the priority action?

- A. Ask the patient to take several deep breaths
- B. Assist the patient to a safe seated or supine position
- C. Leave to obtain the patient's medical record
- D. Complete the exposure before moving the patient

20. During a busy morning shift, in an outpatient setting, when transferring a weak patient from wheelchair to table, what is the safest preliminary action?

- A. Lock the wheelchair and move footrests away
- B. Pull the patient quickly by both arms
- C. Leave the wheelchair angled away from the table
- D. Ask the patient to stand before explaining the transfer

21. While completing a trauma workup, when preparing the room, which information belongs in an objective incident report after a patient fall?

- A. Observed facts and actions taken after the event
- B. A copy placed directly in the medical record
- C. An admission that the department caused the fall
- D. Speculation about which employee was careless

22. In a digital radiography department, during image acquisition, which practice is part of standard precautions for every patient?

- A. Place every patient in airborne isolation
- B. Use sterile gloves for all positioning tasks
- C. Perform hand hygiene at appropriate care moments
- D. Wear an N95 respirator for every interaction

23. Before the next exposure, which finding most strongly suggests an immediate contrast-media reaction requiring rapid assessment?

- A. Mild anxiety before injection
- B. A transient sensation of warmth
- C. A brief metallic taste without other symptoms
- D. Stridor with increasing respiratory difficulty

24. When evaluating image quality, before beginning an examination, which action best verifies the correct patient?

- A. Confirm only the room assignment
- B. Use two independent patient identifiers
- C. Ask a family member to identify the patient
- D. Compare the patient with the schedule photograph

25. While following department protocol, for an adult patient, which response best demonstrates therapeutic communication with an anxious patient?
- A. Promise that the procedure will be painless
 - B. Tell the patient there is nothing to fear
 - C. Invite the patient to describe specific concerns
 - D. Change the subject to avoid increasing anxiety
26. During an entry-level clinical scenario, which measure is most appropriate before moving a patient with an indwelling urinary catheter?
- A. Clamp the catheter throughout the examination
 - B. Keep the drainage bag below bladder level
 - C. Place the bag on the patient's abdomen
 - D. Disconnect the tubing for easier transfer
27. When preparing an adult patient, for an adult patient, which action best protects confidentiality when discussing a patient's imaging history?
- A. Discuss the case in a public elevator
 - B. Post a deidentified story with recognizable circumstances
 - C. Share details with a curious coworker
 - D. Speak privately only with personnel involved in care
28. During a busy morning shift, in an outpatient setting, a competent adult refuses a medically necessary radiographic examination. What should the radiographer do first?
- A. Respect the refusal and notify the responsible provider
 - B. Ask security to restrain the patient
 - C. Obtain consent from the nearest relative
 - D. Proceed because the examination was ordered
29. While completing a trauma workup, during image acquisition, a patient has a valid advance directive in the chart. What is the radiographer's appropriate role?
- A. Ignore it unless a family member repeats it
 - B. Replace it with the radiographer's treatment preference
 - C. Recognize it and promptly communicate relevant wishes
 - D. Independently interpret all legal implications
30. In a digital radiography department, according to safe radiographic practice, a patient becomes pale and reports dizziness while standing for an upright chest image. What is the priority action?
- A. Ask the patient to take several deep breaths
 - B. Assist the patient to a safe seated or supine position
 - C. Complete the exposure before moving the patient
 - D. Leave to obtain the patient's medical record

31. Before the next exposure, when transferring a weak patient from wheelchair to table, what is the safest preliminary action?

- A. Lock the wheelchair and move footrests away
- B. Pull the patient quickly by both arms
- C. Leave the wheelchair angled away from the table
- D. Ask the patient to stand before explaining the transfer

32. When evaluating image quality, which information belongs in an objective incident report after a patient fall?

- A. A copy placed directly in the medical record
- B. Speculation about which employee was careless
- C. An admission that the department caused the fall
- D. Observed facts and actions taken after the event

33. While following department protocol, which practice is part of standard precautions for every patient?

- A. Use sterile gloves for all positioning tasks
- B. Wear an N95 respirator for every interaction
- C. Perform hand hygiene at appropriate care moments
- D. Place every patient in airborne isolation

34. During a busy morning shift, during image acquisition, what happens to x-ray photon energy when tube potential is increased?

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

35. While completing a trauma workup, during a routine examination, during fluoroscopy, where should the image receptor be positioned when practical?

- A. As close to the patient as possible
- B. Directly against the x-ray tube housing
- C. At the maximum source-to-skin distance only
- D. As far from the patient as possible

36. In a digital radiography department, what should a radiographer do with a damaged lead apron discovered during inspection?

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

37. Before the next exposure, when preparing the room, which device monitors accumulated occupational exposure over a wear period?

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

38. When evaluating image quality, in an outpatient setting, which interaction is the principal source of occupational scatter in diagnostic imaging?

- A. Compton interaction within the patient
- B. Pair production in the detector
- C. Photodisintegration in soft tissue
- D. Coherent emission from the filament

39. While following department protocol, in an outpatient setting, what is the primary purpose of radiographic beam collimation?

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

40. During an entry-level clinical scenario, during a routine examination, which principle directly reduces occupational radiation exposure during a mobile examination?

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

41. When preparing an adult patient, which change most directly reduces dose-area product for the same projection?

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

42. During a busy morning shift, according to safe radiographic practice, why is added filtration used in a diagnostic x-ray beam?

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

43. While completing a trauma workup, for an adult patient, which effect is classified as stochastic rather than a tissue reaction?

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

44. In a digital radiography department, what is the safest response when a pregnant patient requires a medically indicated radiograph?

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

- 45.** Before the next exposure, what happens to x-ray photon energy when tube potential is increased?
- A. Photon energy becomes independent of voltage
 - B. Average and maximum photon energies increase
 - C. Only filament temperature determines photon energy
 - D. Maximum energy decreases while quantity rises
- 46.** When evaluating image quality, during a routine examination, during fluoroscopy, where should the image receptor be positioned when practical?
- A. As close to the patient as possible
 - B. At the maximum source-to-skin distance only
 - C. As far from the patient as possible
 - D. Directly against the x-ray tube housing
- 47.** While following department protocol, according to safe radiographic practice, what should a radiographer do with a damaged lead apron discovered during inspection?
- A. Cover the defect with adhesive tape only
 - B. Fold it tightly and return it to storage
 - C. Continue using it until visible holes enlarge
 - D. Remove it from service and follow department policy
- 48.** During an entry-level clinical scenario, when preparing the room, which device monitors accumulated occupational exposure over a wear period?
- A. A lead blocker placed on the table
 - B. A radiographic side marker
 - C. A personnel dosimeter assigned to the worker
 - D. A daily detector calibration phantom
- 49.** When preparing an adult patient, in an outpatient setting, which interaction is the principal source of occupational scatter in diagnostic imaging?
- A. Pair production in the detector
 - B. Coherent emission from the filament
 - C. Photodisintegration in soft tissue
 - D. Compton interaction within the patient
- 50.** During a busy morning shift, in an outpatient setting, what is the primary purpose of radiographic beam collimation?
- A. Limit irradiation to the anatomy of interest
 - B. Eliminate the need for exposure selection
 - C. Magnify the anatomy without distortion
 - D. Increase scatter reaching the detector
- 51.** While completing a trauma workup, during a routine examination, which principle directly reduces occupational radiation exposure during a mobile examination?
- A. Hold the image receptor whenever possible
 - B. Stand beside the tube housing during exposure
 - C. Maximize distance from the x-ray source and patient
 - D. Increase field size to shorten positioning

52. In a digital radiography department, during image acquisition, which change most directly reduces dose-area product for the same projection?

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

53. Before the next exposure, according to safe radiographic practice, why is added filtration used in a diagnostic x-ray beam?

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

54. When evaluating image quality, for an adult patient, which effect is classified as stochastic rather than a tissue reaction?

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

55. While following department protocol, for an adult patient, what is the safest response when a pregnant patient requires a medically indicated radiograph?

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

56. During an entry-level clinical scenario, during image acquisition, what happens to x-ray photon energy when tube potential is increased?

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

57. When preparing an adult patient, during fluoroscopy, where should the image receptor be positioned when practical?

- A. As far from the patient as possible
- B. At the maximum source-to-skin distance only
- C. Directly against the x-ray tube housing
- D. As close to the patient as possible

58. During a busy morning shift, according to safe radiographic practice, what should a radiographer do with a damaged lead apron discovered during inspection?

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

59. While completing a trauma workup, which device monitors accumulated occupational exposure over a wear period?

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

60. In a digital radiography department, in an outpatient setting, which interaction is the principal source of occupational scatter in diagnostic imaging?

- A. Compton interaction within the patient
- B. Photodisintegration in soft tissue
- C. Coherent emission from the filament
- D. Pair production in the detector

61. Before the next exposure, in an outpatient setting, what is the primary purpose of radiographic beam collimation?

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

62. When evaluating image quality, during a routine examination, which principle directly reduces occupational radiation exposure during a mobile examination?

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

63. While following department protocol, during image acquisition, which change most directly reduces dose-area product for the same projection?

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

64. During an entry-level clinical scenario, why is added filtration used in a diagnostic x-ray beam?

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

65. When preparing an adult patient, for an adult patient, which effect is classified as stochastic rather than a tissue reaction?

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

66. During a busy morning shift, for an adult patient, what is the safest response when a pregnant patient requires a medically indicated radiograph?

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

67. While completing a trauma workup, during image acquisition, what happens to x-ray photon energy when tube potential is increased?

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

68. In a digital radiography department, during a routine examination, during fluoroscopy, where should the image receptor be positioned when practical?

- A. As close to the patient as possible
- B. At the maximum source-to-skin distance only
- C. Directly against the x-ray tube housing
- D. As far from the patient as possible

69. Before the next exposure, according to safe radiographic practice, what should a radiographer do with a damaged lead apron discovered during inspection?

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

70. When evaluating image quality, when preparing the room, which device monitors accumulated occupational exposure over a wear period?

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

71. While following department protocol, which interaction is the principal source of occupational scatter in diagnostic imaging?

- A. Photodisintegration in soft tissue
- B. Pair production in the detector
- C. Coherent emission from the filament
- D. Compton interaction within the patient

72. During an entry-level clinical scenario, what is the primary purpose of radiographic beam collimation?

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

73. When preparing an adult patient, which principle directly reduces occupational radiation exposure during a mobile examination?

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

74. During a busy morning shift, during image acquisition, which change most directly reduces dose-area product for the same projection?

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

75. While completing a trauma workup, according to safe radiographic practice, why is added filtration used in a diagnostic x-ray beam?

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

76. In a digital radiography department, for an adult patient, which effect is classified as stochastic rather than a tissue reaction?

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

77. Before the next exposure, for an adult patient, what is the safest response when a pregnant patient requires a medically indicated radiograph?

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

78. When evaluating image quality, during image acquisition, what happens to x-ray photon energy when tube potential is increased?

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

79. While following department protocol, when preparing the room, which device monitors accumulated occupational exposure over a wear period?

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

80. During an entry-level clinical scenario, in an outpatient setting, what is the primary purpose of radiographic beam collimation?

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

81. When preparing an adult patient, during a routine examination, which principle directly reduces occupational radiation exposure during a mobile examination?

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

82. During a busy morning shift, according to safe radiographic practice, why is added filtration used in a diagnostic x-ray beam?

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

83. While completing a trauma workup, which effect is classified as stochastic rather than a tissue reaction?

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

84. When evaluating image quality, which action best reduces shape distortion in a routine projection?

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

85. While following department protocol, during a routine examination, which exposure factor primarily controls x-ray photon quantity when other factors remain constant?

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

86. During an entry-level clinical scenario, when preparing the room, what is exposure creep in digital radiography?

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

87. When preparing an adult patient, why should rejected-image analysis be performed regularly?

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

88. During a busy morning shift, what is the primary cause of quantum noise in a radiographic image?

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

89. While completing a trauma workup, during image acquisition, what does window width primarily control on a displayed digital image?

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

90. In a digital radiography department, during image acquisition, what is the main purpose of an antiscatter grid?

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

91. Before the next exposure, during a routine examination, which quality-control test evaluates spatial resolution?

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

92. When evaluating image quality, for an adult patient, which adjustment is most appropriate when voluntary motion caused image blur?

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

93. While following department protocol, in an outpatient setting, what is the expected image effect of increasing object-to-image distance?

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

94. During an entry-level clinical scenario, according to safe radiographic practice, which digital image indicator most directly reflects detector exposure?

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

95. When preparing an adult patient, for an adult patient, which action best reduces shape distortion in a routine projection?

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

96. During a busy morning shift, during a routine examination, which exposure factor primarily controls x-ray photon quantity when other factors remain constant?

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

97. While completing a trauma workup, when preparing the room, what is exposure creep in digital radiography?

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

98. In a digital radiography department, according to safe radiographic practice, why should rejected-image analysis be performed regularly?

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

99. Before the next exposure, in an outpatient setting, what is the primary cause of quantum noise in a radiographic image?

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

100. When evaluating image quality, what does window width primarily control on a displayed digital image?

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

101. While following department protocol, what is the main purpose of an antiscatter grid?

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

102. During an entry-level clinical scenario, which quality-control test evaluates spatial resolution?

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

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

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

104. During a busy morning shift, in an outpatient setting, what is the expected image effect of increasing object-to-image distance?

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

105. While completing a trauma workup, according to safe radiographic practice, which digital image indicator most directly reflects detector exposure?

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

106. In a digital radiography department, for an adult patient, which action best reduces shape distortion in a routine projection?

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

107. Before the next exposure, during a routine examination, which exposure factor primarily controls x-ray photon quantity when other factors remain constant?

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

108. When evaluating image quality, what is exposure creep in digital radiography?

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

109. While following department protocol, according to safe radiographic practice, why should rejected-image analysis be performed regularly?

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

110. During an entry-level clinical scenario, in an outpatient setting, what is the primary cause of quantum noise in a radiographic image?

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

111. When preparing an adult patient, during image acquisition, what does window width primarily control on a displayed digital image?

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

112. During a busy morning shift, during image acquisition, what is the main purpose of an antiscatter grid?

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

113. While completing a trauma workup, during a routine examination, which quality-control test evaluates spatial resolution?

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

114. In a digital radiography department, for an adult patient, which adjustment is most appropriate when voluntary motion caused image blur?

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

115. Before the next exposure, what is the expected image effect of increasing object-to-image distance?

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

116. When evaluating image quality, which digital image indicator most directly reflects detector exposure?

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

117. While following department protocol, for an adult patient, which action best reduces shape distortion in a routine projection?

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

118. During an entry-level clinical scenario, during a routine examination, which exposure factor primarily controls x-ray photon quantity when other factors remain constant?

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

119. When preparing an adult patient, when preparing the room, what is exposure creep in digital radiography?

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

120. During a busy morning shift, according to safe radiographic practice, why should rejected-image analysis be performed regularly?

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

121. While completing a trauma workup, in an outpatient setting, what is the primary cause of quantum noise in a radiographic image?

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

122. In a digital radiography department, during image acquisition, what does window width primarily control on a displayed digital image?

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

123. Before the next exposure, during image acquisition, what is the main purpose of an antiscatter grid?

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

124. When evaluating image quality, during a routine examination, which quality-control test evaluates spatial resolution?

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

125. While following department protocol, which adjustment is most appropriate when voluntary motion caused image blur?

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

126. During an entry-level clinical scenario, in an outpatient setting, what is the expected image effect of increasing object-to-image distance?

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

127. When preparing an adult patient, according to safe radiographic practice, which digital image indicator most directly reflects detector exposure?

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

128. During a busy morning shift, for an adult patient, which action best reduces shape distortion in a routine projection?

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

129. While completing a trauma workup, which exposure factor primarily controls x-ray photon quantity when other factors remain constant?

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

130. In a digital radiography department, when preparing the room, what is exposure creep in digital radiography?

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

131. Before the next exposure, during image acquisition, what is the main purpose of an antiscatter grid?

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

132. When evaluating image quality, during a routine examination, which quality-control test evaluates spatial resolution?

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

133. While following department protocol, in an outpatient setting, what is the expected image effect of increasing object-to-image distance?

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

134. During an entry-level clinical scenario, according to safe radiographic practice, which digital image indicator most directly reflects detector exposure?

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

135. While completing a trauma workup, during image acquisition, which projection best demonstrates an open glenohumeral joint space when the patient can rotate?

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

136. In a digital radiography department, which breathing instruction is generally used for an upright PA chest image?

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

137. Before the next exposure, for a lateral forearm, how should the elbow generally be positioned?

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

138. When evaluating image quality, during a routine examination, for a routine PA chest projection, where should the shoulders be positioned?

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

139. While following department protocol, according to safe radiographic practice, for a true lateral knee, which relationship should be demonstrated?

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

140. During an entry-level clinical scenario, for an adult patient, what is the purpose of using a horizontal beam for a cross-table lateral hip?

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

141. When preparing an adult patient, for an adult patient, for an AP axial cervical spine projection, how is the central ray commonly directed?

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

142. During a busy morning shift, during image acquisition, which anatomy should be included on a routine AP lumbar spine image?

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

143. While completing a trauma workup, during a routine examination, for an AP pelvis, how are the lower limbs positioned when trauma is not suspected?

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

144. In a digital radiography department, when preparing the room, which position is used to demonstrate an air-fluid level in the abdomen when the patient cannot stand?

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

145. Before the next exposure, in an outpatient setting, which projection is commonly obtained to evaluate the scaphoid with reduced superimposition?

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

146. When evaluating image quality, during image acquisition, which projection best demonstrates an open glenohumeral joint space when the patient can rotate?

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

147. While following department protocol, in an outpatient setting, which breathing instruction is generally used for an upright PA chest image?

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

148. During an entry-level clinical scenario, according to safe radiographic practice, for a lateral forearm, how should the elbow generally be positioned?

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

149. When preparing an adult patient, during a routine examination, for a routine PA chest projection, where should the shoulders be positioned?

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

150. During a busy morning shift, according to safe radiographic practice, for a true lateral knee, which relationship should be demonstrated?

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

151. While completing a trauma workup, for an adult patient, what is the purpose of using a horizontal beam for a cross-table lateral hip?

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

152. In a digital radiography department, for an adult patient, for an AP axial cervical spine projection, how is the central ray commonly directed?

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

153. Before the next exposure, during image acquisition, which anatomy should be included on a routine AP lumbar spine image?

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

154. When evaluating image quality, during a routine examination, for an AP pelvis, how are the lower limbs positioned when trauma is not suspected?

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

155. While following department protocol, when preparing the room, which position is used to demonstrate an air-fluid level in the abdomen when the patient cannot stand?

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

156. During an entry-level clinical scenario, in an outpatient setting, which projection is commonly obtained to evaluate the scaphoid with reduced superimposition?

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

157. When preparing an adult patient, during image acquisition, which projection best demonstrates an open glenohumeral joint space when the patient can rotate?

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

158. During a busy morning shift, in an outpatient setting, which breathing instruction is generally used for an upright PA chest image?

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

159. While completing a trauma workup, according to safe radiographic practice, for a lateral forearm, how should the elbow generally be positioned?

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

160. In a digital radiography department, during a routine examination, for a routine PA chest projection, where should the shoulders be positioned?

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

161. Before the next exposure, according to safe radiographic practice, for a true lateral knee, which relationship should be demonstrated?

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

162. When evaluating image quality, for an adult patient, what is the purpose of using a horizontal beam for a cross-table lateral hip?

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

163. While following department protocol, for an adult patient, for an AP axial cervical spine projection, how is the central ray commonly directed?

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

164. During an entry-level clinical scenario, during image acquisition, which anatomy should be included on a routine AP lumbar spine image?

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

165. When preparing an adult patient, for an AP pelvis, how are the lower limbs positioned when trauma is not suspected?

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

166. During a busy morning shift, when preparing the room, which position is used to demonstrate an air-fluid level in the abdomen when the patient cannot stand?

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

167. While completing a trauma workup, in an outpatient setting, which projection is commonly obtained to evaluate the scaphoid with reduced superimposition?

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

168. In a digital radiography department, during image acquisition, which projection best demonstrates an open glenohumeral joint space when the patient can rotate?

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

169. Before the next exposure, in an outpatient setting, which breathing instruction is generally used for an upright PA chest image?

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

170. When evaluating image quality, according to safe radiographic practice, for a lateral forearm, how should the elbow generally be positioned?

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

171. While following department protocol, during a routine examination, for a routine PA chest projection, where should the shoulders be positioned?

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

172. During an entry-level clinical scenario, according to safe radiographic practice, for a true lateral knee, which relationship should be demonstrated?

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

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

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

174. During a busy morning shift, for an adult patient, for an AP axial cervical spine projection, how is the central ray commonly directed?

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

175. While completing a trauma workup, which anatomy should be included on a routine AP lumbar spine image?

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

176. In a digital radiography department, during a routine examination, for an AP pelvis, how are the lower limbs positioned when trauma is not suspected?

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

177. Before the next exposure, when preparing the room, which position is used to demonstrate an air-fluid level in the abdomen when the patient cannot stand?

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

178. When evaluating image quality, in an outpatient setting, which projection is commonly obtained to evaluate the scaphoid with reduced superimposition?

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

179. While following department protocol, during image acquisition, which projection best demonstrates an open glenohumeral joint space when the patient can rotate?

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

180. During an entry-level clinical scenario, in an outpatient setting, which breathing instruction is generally used for an upright PA chest image?

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

181. When preparing an adult patient, according to safe radiographic practice, for a lateral forearm, how should the elbow generally be positioned?

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

182. During a busy morning shift, during a routine examination, for a routine PA chest projection, where should the shoulders be positioned?

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

183. While completing a trauma workup, according to safe radiographic practice, for a true lateral knee, which relationship should be demonstrated?

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

184. In a digital radiography department, for an adult patient, what is the purpose of using a horizontal beam for a cross-table lateral hip?

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

185. Before the next exposure, for an AP axial cervical spine projection, how is the central ray commonly directed?

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

186. When evaluating image quality, during image acquisition, which anatomy should be included on a routine AP lumbar spine image?

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

187. While following department protocol, during a routine examination, for an AP pelvis, how are the lower limbs positioned when trauma is not suspected?

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

188. During an entry-level clinical scenario, which position is used to demonstrate an air-fluid level in the abdomen when the patient cannot stand?

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

189. When preparing an adult patient, in an outpatient setting, which projection is commonly obtained to evaluate the scaphoid with reduced superimposition?

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

190. During a busy morning shift, which projection best demonstrates an open glenohumeral joint space when the patient can rotate?

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

191. While completing a trauma workup, in an outpatient setting, which breathing instruction is generally used for an upright PA chest image?

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

192. In a digital radiography department, according to safe radiographic practice, for a lateral forearm, how should the elbow generally be positioned?

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

193. Before the next exposure, for a routine PA chest projection, where should the shoulders be positioned?

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

194. When evaluating image quality, for a true lateral knee, which relationship should be demonstrated?

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

195. While following department protocol, what is the purpose of using a horizontal beam for a cross-table lateral hip?

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

196. During an entry-level clinical scenario, for an adult patient, for an AP axial cervical spine projection, how is the central ray commonly directed?

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

197. When preparing an adult patient, during image acquisition, which anatomy should be included on a routine AP lumbar spine image?

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

198. During a busy morning shift, during a routine examination, for an AP pelvis, how are the lower limbs positioned when trauma is not suspected?

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

199. While completing a trauma workup, when preparing the room, which position is used to demonstrate an air-fluid level in the abdomen when the patient cannot stand?

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

200. In a digital radiography department, which projection is commonly obtained to evaluate the scaphoid with reduced superimposition?

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

PRACTICE EXAM 7: ANSWER KEY AND EXPLANATIONS

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

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

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

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

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

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

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

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

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

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

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

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

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- 34. D** - Increasing tube potential raises the electrical potential difference accelerating electrons toward the anode. Their greater kinetic energy produces a beam with higher maximum and average photon energies and usually greater quantity. Filament heating primarily controls electron availability and tube current; it does not independently establish maximum photon energy. This approach supports accurate imaging while protecting the patient and maintaining consistent
- 35. A** - Keeping the receptor close to the patient reduces magnification and can help the automatic brightness or dose-rate system operate with less exposure than a large receptor-to-patient gap. The x-ray tube should remain appropriately distant from the skin. The receptor is never positioned against the tube housing. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

patient and maintaining consistent professional practice.

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

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

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

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

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

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

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

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

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

121. B - Quantum noise becomes prominent when an insufficient number of photons are detected, creating random statistical variation and a mottled appearance. Increasing receptor exposure appropriately can improve signal-to-noise ratio, but dose must remain optimized. Monitor settings, demographic entry, and anatomical markers do not create

photon-counting noise. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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