

PRACTICE EXAM 11: 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. A scaled score of 75 is the ARRT passing standard; it is not a percentage. 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.

1. While coordinating care with the imaging team, before the next exposure, which finding most strongly suggests an immediate contrast-media reaction requiring rapid assessment?
 - A. A brief metallic taste without other symptoms
 - B. Stridor with increasing respiratory difficulty
 - C. Mild anxiety before injection
 - D. A transient sensation of warmth
2. In a hospital radiography department, before the next exposure, when transferring a weak patient from wheelchair to table, what is the safest preliminary action?
 - A. Pull the patient quickly by both arms
 - B. Ask the patient to stand before explaining the transfer
 - C. Lock the wheelchair and move footrests away
 - D. Leave the wheelchair angled away from the table
3. When assessing a completed projection, during an entry-level clinical scenario, which measure is most appropriate before moving a patient with an indwelling urinary catheter?
 - A. Keep the drainage bag below bladder level
 - B. Clamp the catheter throughout the examination
 - C. Disconnect the tubing for easier transfer
 - D. Place the bag on the patient's abdomen
4. During a quality-focused clinical shift, 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. Independently interpret all legal implications
 - B. Ignore it unless a family member repeats it
 - C. Replace it with the radiographer's treatment preference
 - D. Recognize it and promptly communicate relevant wishes
5. While applying ALARA principles, when preparing an adult patient, during image acquisition, which practice is part of standard precautions for every patient?
 - A. Wear an N95 respirator for every interaction
 - B. Place every patient in airborne isolation
 - C. Perform hand hygiene at appropriate care moments
 - D. Use sterile gloves for all positioning tasks

6. During a competency evaluation, 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. Obtain consent from the nearest relative
- B. Respect the refusal and notify the responsible provider
- C. Proceed because the examination was ordered
- D. Ask security to restrain the patient

7. When reviewing the next imaging request, 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. Complete the exposure before moving the patient
- B. Leave to obtain the patient's medical record
- C. Ask the patient to take several deep breaths
- D. Assist the patient to a safe seated or supine position

8. During preparation for an urgent examination, during an entry-level clinical scenario, 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

9. While coordinating care with the imaging team, when evaluating image quality, before beginning an examination, which action best verifies the correct patient?

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

10. In a hospital radiography department, when preparing an adult patient, for an adult patient, which response best demonstrates therapeutic communication with an anxious patient?

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

11. When assessing a completed projection, when preparing an adult patient, for an adult patient, which action best protects confidentiality when discussing a patient's imaging history?

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

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

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

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

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

14. During a competency evaluation, 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. Place the bag on the patient's abdomen
- B. Disconnect the tubing for easier transfer
- C. Clamp the catheter throughout the examination
- D. Keep the drainage bag below bladder level

15. When reviewing the next imaging request, before the next exposure, a patient has a valid advance directive in the chart. What is the radiographer's appropriate role?

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

16. During preparation for an urgent examination, 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. Wear an N95 respirator for every interaction
- C. Use sterile gloves for all positioning tasks
- D. Perform hand hygiene at appropriate care moments

17. While coordinating care with the imaging team, 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. 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. In a hospital radiography department, 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. Assist the patient to a safe seated or supine position
- B. Ask the patient to take several deep breaths
- C. Leave to obtain the patient's medical record
- D. Complete the exposure before moving the patient

19. When assessing a completed projection, while completing a trauma workup, 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. Observed facts and actions taken after the event
- C. A copy placed directly in the medical record
- D. Speculation about which employee was careless

20. During a quality-focused clinical shift, while completing a trauma workup, during a routine examination, before beginning an examination, which action best verifies the correct patient?

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

21. While applying ALARA principles, in a digital radiography department, which response best demonstrates therapeutic communication with an anxious patient?

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

22. During a competency evaluation, while completing a trauma workup, which action best protects confidentiality when discussing a patient's imaging history?

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

23. When reviewing the next imaging request, while following department protocol, during a routine examination, which finding most strongly suggests an immediate contrast-media reaction requiring rapid assessment?

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

24. During preparation for an urgent examination, 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

25. While coordinating care with the imaging team, 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. Place the bag on the patient's abdomen
- D. Keep the drainage bag below bladder level

26. In a hospital radiography department, 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. Recognize it and promptly communicate relevant wishes
- C. Replace it with the radiographer's treatment preference
- D. Independently interpret all legal implications

27. When assessing a completed projection, while following department protocol, which practice is part of standard precautions for every patient?

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

28. During a quality-focused clinical shift, while following department protocol, a competent adult refuses a medically necessary radiographic examination. What should the radiographer do first?

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

29. While applying ALARA principles, 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. 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

30. During a competency evaluation, when evaluating image quality, 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

31. When reviewing the next imaging request, during an entry-level clinical scenario, during a routine examination, 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

32. During preparation for an urgent examination, while following department protocol, for an adult patient, which response best demonstrates therapeutic communication with an anxious patient?

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

33. While coordinating care with the imaging team, when evaluating image quality, for an adult patient, 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

34. During preparation for an urgent examination, during a busy morning shift, 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

35. While coordinating care with the imaging team, 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. Double exposure factors to shorten the examination
- C. Exclude the patient from shared decision-making
- D. Optimize the examination and avoid unnecessary repeats

36. In a hospital radiography department, when preparing an adult patient, which principle directly reduces occupational radiation exposure during a mobile examination?

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

37. When assessing a completed projection, in a digital radiography department, in an outpatient setting, which interaction is the principal source of occupational scatter in diagnostic imaging?

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

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

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

39. While applying ALARA principles, while following department protocol, when preparing the room, which device monitors accumulated occupational exposure over a wear period?

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

40. During a competency evaluation, 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. As far from the patient as possible
- C. At the maximum source-to-skin distance only
- D. Directly against the x-ray tube housing

41. When reviewing the next imaging request, when evaluating image quality, 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

42. During preparation for an urgent examination, 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

43. While coordinating care with the imaging team, before the next exposure, in an outpatient setting, what is the primary purpose of radiographic beam collimation?

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

44. In a hospital radiography department, 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. Continue using it until visible holes enlarge
- C. Fold it tightly and return it to storage
- D. Remove it from service and follow department policy

45. When assessing a completed projection, 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. Remove low-energy photons unlikely to reach the detector
- D. Create more low-energy characteristic photons

46. During a quality-focused clinical shift, during a busy morning shift, for an adult patient, what is the safest response when a pregnant patient requires a medically indicated radiograph?

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

47. While applying ALARA principles, 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. Hold the image receptor whenever possible
- C. Increase field size to shorten positioning
- D. Maximize distance from the x-ray source and patient

48. During a competency evaluation, 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. Compton interaction within the patient
- C. Photodisintegration in soft tissue
- D. Coherent emission from the filament

49. When reviewing the next imaging request, during an entry-level clinical scenario, during image acquisition, what happens to x-ray photon energy when tube potential is increased?

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

50. During preparation for an urgent examination, 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

51. While coordinating care with the imaging team, when evaluating image quality, during a routine examination, during fluoroscopy, where should the image receptor be positioned when practical?

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

52. In a hospital radiography department, 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. Temporary epilation after irradiation
- C. Skin erythema after a high dose
- D. Lens opacification above a threshold

53. When assessing a completed projection, when preparing an adult patient, 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 shorter source-to-image distance
- D. A larger exposed field

54. During a quality-focused clinical shift, during an entry-level clinical scenario, in an outpatient setting, what is the primary purpose of radiographic beam collimation?

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

55. While applying ALARA principles, during a busy morning shift, according to safe radiographic practice, what should a radiographer do with a damaged lead apron discovered during inspection?

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

56. During a competency evaluation, 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

57. When reviewing the next imaging request, while following department protocol, 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. Automatically cancel every radiographic procedure
- C. Double exposure factors to shorten the examination
- D. Optimize the examination and avoid unnecessary repeats

58. During preparation for an urgent examination, while completing a trauma workup, during a routine examination, which principle directly reduces occupational radiation exposure during a mobile examination?

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

59. While coordinating care with the imaging team, while following department protocol, which interaction is the principal source of occupational scatter in diagnostic imaging?

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

60. In a hospital radiography department, before the next exposure, 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. Only filament temperature determines photon energy
- D. Photon energy becomes independent of voltage

61. When assessing a completed projection, when evaluating image quality, when preparing the room, which device monitors accumulated occupational exposure over a year 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

62. During a quality-focused clinical shift, when preparing an adult patient, during fluoroscopy, where should the image receptor be positioned when practical?

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

63. While applying ALARA principles, when preparing an adult patient, 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

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

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

65. When reviewing the next imaging request, during a busy morning shift, in an outpatient setting, what is the primary purpose of radiographic beam collimation?

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

66. During preparation for an urgent examination, in a digital radiography department, what should a radiographer do with a damaged lead apron discovered during inspection?

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

67. While coordinating care with the imaging team, before the next exposure, 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. Replace the need for beam restriction
- D. Create more low-energy characteristic photons

68. In a hospital radiography department, before the next exposure, for an adult patient, what is the safest response when a pregnant patient requires a medically indicated radiograph?

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

69. When assessing a completed projection, during an entry-level clinical scenario, during a routine examination, which principle directly reduces occupational radiation exposure during a mobile examination?

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

70. During a quality-focused clinical shift, when evaluating image quality, in an outpatient setting, which interaction is the principal source of occupational scatter in diagnostic imaging?

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

71. While applying ALARA principles, when evaluating image quality, during image acquisition, what happens to x-ray photon energy when tube potential is increased?

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

72. During a competency evaluation, during an entry-level clinical scenario, 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

73. When reviewing the next imaging request, while completing a trauma workup, during a routine examination, during fluoroscopy, where should the image receptor be positioned when practical?

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

74. During preparation for an urgent examination, while completing a trauma workup, which effect is classified as stochastic rather than a tissue reaction?

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

75. While coordinating care with the imaging team, while following department protocol, during image acquisition, which change most directly reduces dose-area product for the same projection?

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

76. In a hospital radiography department, during an entry-level clinical scenario, what is the primary purpose of radiographic beam collimation?

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

77. When assessing a completed projection, before the next exposure, according to safe radiographic practice, what should a radiographer do with a damaged lead apron discovered during inspection?

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

78. During a quality-focused clinical shift, while completing a trauma workup, according to safe radiographic practice, why is added filtration used in a diagnostic x-ray beam?

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

79. While applying ALARA principles, 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

80. During a competency evaluation, while completing a trauma workup, during image acquisition, what happens to x-ray photon energy when tube potential is increased?

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

81. When reviewing the next imaging request, 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

82. During preparation for an urgent examination, 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. Skin erythema after a high dose
- C. Temporary epilation after irradiation
- D. Lens opacification above a threshold

83. While coordinating care with the imaging team, while following department protocol, in an outpatient setting, what is the primary purpose of radiographic beam collimation?

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

84. During preparation for an urgent examination, during an entry-level clinical scenario, which quality-control test evaluates spatial resolution?

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

85. While coordinating care with the imaging team, 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 amount of beam filtration
- C. The range of gray shades and displayed contrast
- D. The physical focal-spot dimension

86. In a hospital radiography department, 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. Anode angle alone
- B. Focal-spot size alone
- C. Source-to-image distance alone
- D. Milliampere-seconds

87. When assessing a completed projection, before the next exposure, during image acquisition, what is the main purpose of an antiscatter grid?

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

88. During a quality-focused clinical shift, 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. Less magnification and greater detail
- D. Greater contrast without size change

89. While applying ALARA principles, 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 fixed error in patient identification
- C. A gradual upward drift in technique and patient dose
- D. A decrease in field size from collimation

90. During a competency evaluation, 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 displayed monitor brightness alone
- D. The patient's body temperature

91. When reviewing the next imaging request, while completing a trauma workup, in an outpatient setting, what is the primary cause of quantum noise in a radiographic image?

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

92. During preparation for an urgent examination, during a busy morning shift, for an adult patient, which action best reduces shape distortion in a routine projection?

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

93. While coordinating care with the imaging team, when evaluating image quality, for an adult patient, which adjustment is most appropriate when voluntary motion caused image blur?

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

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

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

95. When assessing a completed projection, before the next exposure, during a routine examination, which quality-control test evaluates spatial resolution?

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

96. During a quality-focused clinical shift, 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

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

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

98. During a competency evaluation, while following department protocol, what is the main purpose of an antiscatter grid?

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

99. When reviewing the next imaging request, during an entry-level clinical scenario, in an outpatient setting, what is the expected image effect of increasing object-to-image distance?

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

100. During preparation for an urgent examination, when evaluating image quality, what is exposure creep in digital radiography?

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

101. While coordinating care with the imaging team, when evaluating image quality, which digital image indicator most directly reflects detector exposure?

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

102. In a hospital radiography department, 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

103. When assessing a completed projection, when evaluating image quality, which action best reduces shape distortion in a routine projection?

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

104. During a quality-focused clinical shift, when preparing an adult patient, for an adult patient, which adjustment is most appropriate when voluntary motion caused image blur?

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

105. While applying ALARA principles, while following department protocol, according to safe radiographic practice, why should rejected-image analysis be performed regularly?

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

106. During a competency evaluation, when evaluating image quality, during a routine examination, which quality-control test evaluates spatial resolution?

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

107. When reviewing the next imaging request, when evaluating image quality, what does window width primarily control on a displayed digital image?

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

108. During preparation for an urgent examination, 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

109. While coordinating care with the imaging team, during a busy morning shift, 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

110. In a hospital radiography department, while following department protocol, in an outpatient setting, what is the expected image effect of increasing object-to-image distance?

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

111. When assessing a completed projection, while completing a trauma workup, when preparing the room, what is exposure creep in digital radiography?

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

112. During a quality-focused clinical shift, when preparing an adult patient, according to safe radiographic practice, which digital image indicator most directly reflects detector exposure?

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

113. While applying ALARA principles, during a busy morning shift, 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. Excessive monitor brightness
- D. Incorrect patient name entry

114. During a competency evaluation, 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. Align the tube, part, and receptor as prescribed
- D. Use the largest available focal spot

115. When reviewing the next imaging request, in a digital radiography department, for an adult patient, which adjustment is most appropriate when voluntary motion caused image blur?

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

116. During preparation for an urgent examination, during a busy morning shift, according to safe radiographic practice, why should rejected-image analysis be performed regularly?

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

117. While coordinating care with the imaging team, when evaluating image quality, during a routine examination, which quality-control test evaluates spatial resolution?

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

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

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

119. When assessing a completed projection, during a busy morning shift, during a routine examination, which exposure factor primarily controls x-ray photon quantity when other factors remain constant?

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

120. During a quality-focused clinical shift, before the next exposure, 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

121. While applying ALARA principles, while following department protocol, in an outpatient setting, what is the expected image effect of increasing object-to-image distance?

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

122. During a competency evaluation, during an entry-level clinical scenario, when preparing the room, what is exposure creep in digital radiography?

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

123. When reviewing the next imaging request, while completing a trauma workup, according to safe radiographic practice, which digital image indicator most directly reflects detector exposure?

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

124. During preparation for an urgent examination, during an entry-level clinical scenario, in an outpatient setting, what is the primary cause of quantum noise in a radiographic image?

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

125. While coordinating care with the imaging team, while following department protocol, 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

126. In a hospital radiography department, while following department protocol, which adjustment is most appropriate when voluntary motion caused image blur?

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

127. When assessing a completed projection, when preparing an adult patient, 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

128. During a quality-focused clinical shift, while completing a trauma workup, during a routine examination, which quality-control test evaluates spatial resolution?

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

129. While applying ALARA principles, 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. Focal-spot size alone
- C. Anode angle alone
- D. Milliampere-seconds

130. During a competency evaluation, in a digital radiography department, during image acquisition, what is the main purpose of an antiscatter grid?

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

131. When reviewing the next imaging request, during a busy morning shift, in an outpatient setting, what is the expected image effect of increasing object-to-image distance?

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

132. During preparation for an urgent examination, when preparing an adult patient, when preparing the room, what is exposure creep in digital radiography?

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

133. While coordinating care with the imaging team, during an entry-level clinical scenario, according to safe radiographic practice, which digital image indicator most directly reflects detector exposure?

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

134. In a hospital radiography department, when preparing an adult patient, for an adult patient, which action best reduces shape distortion in a routine projection?

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

135. While coordinating care with the imaging team, when evaluating image quality, during image acquisition, which projection best demonstrates an open glenohumeral joint space when the patient can rotate?

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

136. In a hospital radiography department, during an entry-level clinical scenario, 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

137. When assessing a completed projection, while completing a trauma workup, according to safe radiographic practice, 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. Patella entirely medial to the femur
- D. Femoral condyles nearly superimposed

138. During a quality-focused clinical shift, 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. Demonstrate the hip without moving the injured limb
- B. Magnify both hips equally
- C. Force the femur into internal rotation
- D. Eliminate the need for receptor placement

139. While applying ALARA principles, when preparing an adult patient, 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

140. During a competency evaluation, 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

141. When reviewing the next imaging request, when preparing an adult patient, for an adult patient, 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

142. During preparation for an urgent examination, 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. 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

143. While coordinating care with the imaging team, 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. Elevated to superimpose the clavicles
- C. Rotated so one side is farther from the receptor
- D. Rolled forward to move the scapulae laterally

144. In a hospital radiography department, 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. Right lateral decubitus after expiration
- B. Prone abdomen with an angled beam
- C. Left lateral decubitus with a horizontal beam
- D. Supine abdomen with a vertical beam

145. When assessing a completed projection, before the next exposure, in an outpatient setting, which breathing instruction is generally used for an upright PA chest image?

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

146. During a quality-focused clinical shift, while completing a trauma workup, during image acquisition, which projection best demonstrates an open glenohumeral joint space when the patient can rotate?

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

147. While applying ALARA principles, 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. Fully extended with the hand pronated
- C. Abducted above the head with the palm down
- D. Hyperextended with the wrist oblique

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

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

149. When reviewing the next imaging request, when evaluating image quality, for an adult patient, what is the purpose of using a horizontal beam for a cross-table lateral hip?

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

150. During preparation for an urgent examination, while completing a trauma workup, 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

151. While coordinating care with the imaging team, when preparing an adult patient, in an outpatient setting, which projection is commonly obtained to evaluate the scaphoid with reduced superimposition?

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

152. In a hospital radiography department, before the next exposure, 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. Caudad through the upper thorax
- D. Cephalad through the midcervical region

153. When assessing a completed projection, while following department protocol, during a routine examination, for an AP pelvis, how are the lower limbs positioned when trauma is not suspected?

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

154. During a quality-focused clinical shift, when evaluating image quality, during a routine examination, for a routine PA chest projection, where should the shoulders be positioned?

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

155. While applying ALARA principles, 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. Supine abdomen with a vertical beam
- B. Left lateral decubitus with a horizontal beam
- C. Prone abdomen with an angled beam
- D. Right lateral decubitus after expiration

156. During a competency evaluation, while completing a trauma workup, in an outpatient setting, which breathing instruction is generally used for an upright PA chest image?

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

157. When reviewing the next imaging request, in a digital radiography department, 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 oblique Grashey projection
- D. AP axial clavicle projection

158. During preparation for an urgent examination, before the next exposure, 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

159. While coordinating care with the imaging team, while following department protocol, according to safe radiographic practice, for a true lateral knee, which relationship should be demonstrated?

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

160. In a hospital radiography department, 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. Demonstrate the hip without moving the injured limb
- B. Force the femur into internal rotation
- C. Eliminate the need for receptor placement
- D. Magnify both hips equally

161. When assessing a completed projection, when evaluating image quality, during image acquisition, 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. The entire skull and mandible
- D. Only the thoracic vertebrae

162. During a quality-focused clinical shift, before the next exposure, 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. AP forearm with elbow flexion
- D. PA wrist with ulnar deviation

163. While applying ALARA principles, while following department protocol, 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

164. During a competency evaluation, 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. Flexed sharply to widen the pelvic inlet
- C. Crossed to superimpose both femoral heads
- D. Externally rotated to show lesser trochanters

165. When reviewing the next imaging request, in a digital radiography department, during a routine examination, for a routine PA chest projection, where should the shoulders be positioned?

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

166. During preparation for an urgent examination, 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. Prone abdomen with an angled beam
- C. Supine abdomen with a vertical beam
- D. Left lateral decubitus with a horizontal beam

167. While coordinating care with the imaging team, 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. Continue shallow breathing throughout exposure
- C. Suspend immediately after swallowing
- D. Expose during quiet expiration

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

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

169. When assessing a completed projection, 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. Fully extended with the hand pronated
- C. Hyperextended with the wrist oblique
- D. Abducted above the head with the palm down

170. During a quality-focused clinical shift, when evaluating image quality, for a true lateral knee, which relationship should be demonstrated?

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

171. While applying ALARA principles, 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. Demonstrate the hip without moving the injured limb
- D. Magnify both hips equally

172. During a competency evaluation, before the next exposure, during image acquisition, which anatomy should be included on a routine AP lumbar spine image?

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

173. When reviewing the next imaging request, during an entry-level clinical scenario, 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. PA wrist with ulnar deviation
- D. Lateral humerus with external rotation

174. During preparation for an urgent examination, 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. Horizontally through the iliac crest
- C. Caudad through the upper thorax
- D. Perpendicular through the distal femur

175. While coordinating care with the imaging team, 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. 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

176. In a hospital radiography department, before the next exposure, 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. Elevated to superimpose the clavicles
- D. Rolled forward to move the scapulae laterally

177. When assessing a completed projection, 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. 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

178. During a quality-focused clinical shift, while following department protocol, 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

179. While applying ALARA principles, when preparing an adult patient, during image acquisition, which projection best demonstrates an open glenohumeral joint space when the patient can rotate?

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

180. During a competency evaluation, when evaluating image quality, according to safe radiographic practice, for a lateral forearm, how should the elbow generally be positioned?

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

181. When reviewing the next imaging request, during an entry-level clinical scenario, according to safe radiographic practice, for a true lateral knee, which relationship should be demonstrated?

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

182. During preparation for an urgent examination, 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. Magnify both hips equally
- C. Eliminate the need for receptor placement
- D. Demonstrate the hip without moving the injured limb

183. While coordinating care with the imaging team, during an entry-level clinical scenario, 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

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

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

185. When assessing a completed projection, in a digital radiography department, for an adult patient, for an AP axial cervical spine projection, how is the central ray commonly directed?

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

186. During a quality-focused clinical shift, when evaluating image quality, 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. Externally rotated to show lesser trochanters
- C. Internally rotated to place femoral necks in profile
- D. Flexed sharply to widen the pelvic inlet

187. While applying ALARA principles, during a busy morning shift, during a routine examination, for a routine PA chest projection, where should the shoulders be positioned?

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

188. During a competency evaluation, 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. Prone abdomen with an angled beam
- B. Right lateral decubitus after expiration
- C. Supine abdomen with a vertical beam
- D. Left lateral decubitus with a horizontal beam

189. When reviewing the next imaging request, during an entry-level clinical scenario, 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

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

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

191. While coordinating care with the imaging team, in a digital radiography department, according to safe radiographic practice, for a lateral forearm, how should the elbow generally be positioned?

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

192. In a hospital radiography department, before the next exposure, 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. Tibial plateau perpendicular to the receptor
- D. Femoral condyles nearly superimposed

193. When assessing a completed projection, while following department protocol, what is the purpose of using a horizontal beam for a cross-table lateral hip?

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

194. During a quality-focused clinical shift, during a busy morning shift, during image acquisition, which anatomy should be included on a routine AP lumbar spine image?

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

195. While applying ALARA principles, while completing a trauma workup, 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. PA wrist with ulnar deviation
- D. Lateral humerus with external rotation

196. During a competency evaluation, 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. Horizontally through the iliac crest
- B. Cephalad through the midcervical region
- C. Caudad through the upper thorax
- D. Perpendicular through the distal femur

197. When reviewing the next imaging request, 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. 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

198. During preparation for an urgent examination, while following department protocol, during a routine examination, for a routine PA chest projection, where should the shoulders be positioned?

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

199. While coordinating care with the imaging team, 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

200. In a hospital radiography department, 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. Expose after the second full inspiration
- C. Suspend immediately after swallowing
- D. Continue shallow breathing throughout exposure

PRACTICE EXAM 11: ANSWER KEY AND EXPLANATIONS

- 1. 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.
- 2. C** - Locking the wheelchair and clearing footrests creates a stable transfer surface and removes tripping hazards. The radiographer should explain the plan, assess weight-bearing ability, use appropriate assistance or devices, and protect tubes and lines. Pulling the arms, using an unstable chair position, or rushing the patient increases injury risk. This approach supports accurate imaging while protecting the patient and maintaining
- 3. A** - Keeping the collection bag below bladder level promotes gravity drainage and reduces reflux risk. The closed system should remain intact, tubing should be protected from tension or kinking, and the bag should not rest on the patient. Routine disconnection or clamping can introduce infection or obstruct drainage unless specifically ordered.
- 4. 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.
- 5. 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
- 6. 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.
- 7. 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
- 8. 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.
- 9. C** - Two independent identifiers, such as full name and date of birth, reduce wrong-patient errors. A room number or location is not an identifier. Family confirmation and photographs may support identification, but they do not replace the facility's standardized two-identifier process before imaging or treatment. This approach supports accurate imaging while protecting the patient and maintaining consistent professional practice.
- 10. 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.
- 11. 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

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

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

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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. A - 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

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

35. D - 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

36. 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

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

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

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

40. 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.

41. 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

42. B - 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

43. C - 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.

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

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

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

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

86. 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.

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

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

89. C - Digital systems can mask overexposure by rescaling image brightness, allowing technique factors to drift upward over time without obvious dark images. Monitoring exposure indicators, technique charts, and repeat data helps control this dose increase. Exposure creep is not a detector failure, collimation effect, or identification error. This approach supports

accurate imaging while protecting the patient and maintaining consistent professional practice.

90. 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.

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

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

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

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

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

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

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

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

103. 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.

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

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

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

107. 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.

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

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

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

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

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135. B - 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 - 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.

137. 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.

138. A - 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

139. C - 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.

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

141. B - The AP axial cervical projection uses a cephalad central-ray angle to help project the intervertebral disk spaces and reduce superimposition of adjacent structures. Accurate centering and chin positioning remain essential. 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 - 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.

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

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

145. 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

146. 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.

147. 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.

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

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

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

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

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

157. C - 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.

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