

PRACTICE EXAM 13: ARRT COMPUTED TOMOGRAPHY SIMULATION (165 QUESTIONS)

This practice exam contains 165 scored-style questions based on the ARRT CT content specifications effective September 1, 2026. Allow 195 minutes. Select the single best answer for each question. ARRT reports scaled scores from 1 to 99; a scaled score of 75 is required to pass.

1. Exam 13 patient case 1: What is the best initial action when contrast extravasation is suspected?

- A. Increase the flow rate to clear the catheter
- B. Apply firm pressure and continue scanning
- C. Flush forcefully with additional contrast
- D. Stop the injection and assess the affected extremity

2. Exam 13 patient case 2: Which venipuncture practice best supports infection prevention?

- A. Use hand hygiene and aseptic skin preparation
- B. Repalpate the cleaned site with an ungloved finger
- C. Reuse a clean tourniquet as a sterile field
- D. Touch the catheter tip to confirm placement

3. Exam 13 patient case 3: A patient has limited English proficiency. What is the most appropriate communication method?

- A. Rely on a young family member
- B. Use a qualified medical interpreter
- C. Proceed using gestures alone
- D. Obtain consent after the scan

4. Exam 13 patient case 4: Which information must be documented after power injection?

- A. Only the scanner serial number
- B. Only the patient's arrival time
- C. Site, catheter gauge, contrast amount, and flow rate
- D. The radiologist's office schedule

5. Exam 13 patient case 5: A conscious adult refuses contrast after receiving an explanation. What should the technologist do?

- A. Administer contrast because the order is signed
- B. Ask security to authorize the injection
- C. Sedate the patient without further discussion
- D. Respect the refusal and notify the responsible provider

6. Exam 13 patient case 6: Which device requires special attention when transferring a patient to the CT table?

- A. An indwelling chest tube and drainage system
- B. A removable cotton blanket
- C. A paper identification band
- D. A nonmetallic positioning sponge

7. Exam 13 patient case 7: What is the safest response to a patient who becomes unresponsive during scanning?

- A. Finish the acquisition before entering the room
- B. Stop the scan, assess responsiveness, and summon help
- C. Lower window width to inspect the images
- D. Move the patient without checking attached lines

8. Exam 13 patient case 8: Before iodinated contrast CT, which laboratory result most directly estimates renal filtration?

- A. Serum sodium concentration
- B. White blood cell count
- C. Activated clotting time
- D. Estimated glomerular filtration rate

9. Exam 13 patient case 9: A patient develops wheezing and hypotension immediately after iodinated contrast. What is the priority response?

- A. Offer oral fluids and continue observation
- B. Remove the IV and discharge the patient
- C. Activate emergency response and support the airway
- D. Complete the scan before giving assistance

10. Exam 13 patient case 10: Which action is part of a proper preprocedure time-out?

- A. Verify only the room and scanner model
- B. Ask the patient to select the protocol
- C. Confirm patient, examination, and intended site
- D. Document contrast after the patient leaves

11. Exam 13 patient case 11: What is the best initial action when contrast extravasation is suspected?

- A. Increase the flow rate to clear the catheter
- B. Stop the injection and assess the affected extremity
- C. Apply firm pressure and continue scanning
- D. Flush forcefully with additional contrast

12. Exam 13 patient case 12: Which venipuncture practice best supports infection prevention?

- A. Repalpate the cleaned site with an ungloved finger
- B. Reuse a clean tourniquet as a sterile field
- C. Touch the catheter tip to confirm placement
- D. Use hand hygiene and aseptic skin preparation

13. Exam 13 patient case 13: A patient has limited English proficiency. What is the most appropriate communication method?

- A. Use a qualified medical interpreter
- B. Rely on a young family member
- C. Proceed using gestures alone
- D. Obtain consent after the scan

14. Exam 13 patient case 14: Which information must be documented after power injection?

- A. Only the scanner serial number
- B. Only the patient's arrival time
- C. The radiologist's office schedule
- D. Site, catheter gauge, contrast amount, and flow rate

15. Exam 13 patient case 15: A conscious adult refuses contrast after receiving an explanation. What should the technologist do?

- A. Respect the refusal and notify the responsible provider
- B. Administer contrast because the order is signed
- C. Ask security to authorize the injection
- D. Sedate the patient without further discussion

16. Exam 13 patient case 16: Which device requires special attention when transferring a patient to the CT table?

- A. A removable cotton blanket
- B. A paper identification band
- C. An indwelling chest tube and drainage system
- D. A nonmetallic positioning sponge

17. Exam 13 patient case 17: What is the safest response to a patient who becomes unresponsive during scanning?

- A. Finish the acquisition before entering the room
- B. Stop the scan, assess responsiveness, and summon help
- C. Lower window width to inspect the images
- D. Move the patient without checking attached lines

18. Exam 13 patient case 18: Before iodinated contrast CT, which laboratory result most directly estimates renal filtration?

- A. Estimated glomerular filtration rate
- B. Serum sodium concentration
- C. White blood cell count
- D. Activated clotting time

19. Exam 13 patient case 19: A patient develops wheezing and hypotension immediately after iodinated contrast. What is the priority response?

- A. Offer oral fluids and continue observation
- B. Remove the IV and discharge the patient
- C. Complete the scan before giving assistance
- D. Activate emergency response and support the airway

20. Exam 13 patient case 20: Which action is part of a proper preprocedure time-out?

- A. Verify only the room and scanner model
- B. Ask the patient to select the protocol
- C. Confirm patient, examination, and intended site
- D. Document contrast after the patient leaves

21. Exam 13 patient case 21: What is the best initial action when contrast extravasation is suspected?

- A. Increase the flow rate to clear the catheter
- B. Stop the injection and assess the affected extremity
- C. Apply firm pressure and continue scanning
- D. Flush forcefully with additional contrast

22. Exam 13 safety case 1: Which practice is most appropriate for pediatric CT?

- A. Use size-specific protocols and appropriate clinical indications
- B. Use the adult protocol for consistent appearance
- C. Increase multiphase acquisitions routinely
- D. Repeat every scan after repositioning

23. Exam 13 safety case 2: If all other factors remain constant, which change generally lowers CT radiation dose?

- A. Increasing tube current-time product
- B. Repeating the same acquisition
- C. Reducing tube current-time product
- D. Extending the scan length

24. Exam 13 safety case 3: Which quantity represents integrated scanner output across the imaged length?

- A. Window level
- B. Dose-length product
- C. Hounsfield number
- D. Temporal resolution

25. Exam 13 safety case 4: What is the primary purpose of automatic tube current modulation?

- A. Keep tube current fixed for every projection
- B. Increase scan length automatically
- C. Replace patient centering requirements
- D. Adapt tube current to patient attenuation

26. Exam 13 safety case 5: How does incorrect off-centering commonly affect a CT examination?

- A. It can impair modulation and increase dose or noise
- B. It guarantees uniform low dose
- C. It eliminates bow-tie filtration
- D. It prevents all motion artifacts

27. Exam 13 safety case 6: Which interaction is the major source of occupational scatter in diagnostic CT?

- A. Pair production
- B. Compton scattering
- C. Photodisintegration
- D. Coherent transmission only

28. Exam 13 safety case 7: Why should scan coverage be limited to the indicated anatomy?

- A. Coverage has no relationship to dose
- B. Short coverage always increases CTDI_{vol}

- C. Longer coverage directly increases dose-length product
- D. Coverage controls only window width

29. Exam 13 safety case 8: Which practice is most appropriate for pediatric CT?

- A. Use the adult protocol for consistent appearance
- B. Increase multiphase acquisitions routinely
- C. Repeat every scan after repositioning
- D. Use size-specific protocols and appropriate clinical indications

30. Exam 13 safety case 9: If all other factors remain constant, which change generally lowers CT radiation dose?

- A. Increasing tube current-time product
- B. Repeating the same acquisition
- C. Extending the scan length
- D. Reducing tube current-time product

31. Exam 13 safety case 10: Which quantity represents integrated scanner output across the imaged length?

- A. Window level
- B. Hounsfield number
- C. Dose-length product
- D. Temporal resolution

32. Exam 13 safety case 11: What is the primary purpose of automatic tube current modulation?

- A. Keep tube current fixed for every projection
- B. Adapt tube current to patient attenuation
- C. Increase scan length automatically

D. Replace patient centering requirements

33. Exam 13 safety case 12: How does incorrect off-centering commonly affect a CT examination?

- A. It can impair modulation and increase dose or noise
- B. It guarantees uniform low dose
- C. It eliminates bow-tie filtration
- D. It prevents all motion artifacts

34. Exam 13 safety case 13: Which interaction is the major source of occupational scatter in diagnostic CT?

- A. Compton scattering
- B. Pair production
- C. Photodisintegration
- D. Coherent transmission only

35. Exam 13 safety case 14: Why should scan coverage be limited to the indicated anatomy?

- A. Coverage has no relationship to dose
- B. Longer coverage directly increases dose-length product
- C. Short coverage always increases CTDI_{vol}
- D. Coverage controls only window width

36. Exam 13 safety case 15: Which practice is most appropriate for pediatric CT?

- A. Use the adult protocol for consistent appearance
- B. Increase multiphase acquisitions routinely
- C. Repeat every scan after repositioning
- D. Use size-specific protocols and appropriate clinical indications

37. Exam 13 safety case 16: If all other factors remain constant, which change generally lowers CT radiation dose?

- A. Increasing tube current-time product
- B. Repeating the same acquisition
- C. Reducing tube current-time product
- D. Extending the scan length

38. Exam 13 safety case 17: Which quantity represents integrated scanner output across the imaged length?

- A. Window level
- B. Hounsfield number
- C. Dose-length product
- D. Temporal resolution

39. Exam 13 safety case 18: What is the primary purpose of automatic tube current modulation?

- A. Keep tube current fixed for every projection
- B. Increase scan length automatically
- C. Replace patient centering requirements
- D. Adapt tube current to patient attenuation

40. Exam 13 safety case 19: How does incorrect off-centering commonly affect a CT examination?

- A. It guarantees uniform low dose
- B. It can impair modulation and increase dose or noise
- C. It eliminates bow-tie filtration
- D. It prevents all motion artifacts

41. Exam 13 safety case 20: Which interaction is the major source of occupational scatter in diagnostic CT?

- A. Compton scattering
- B. Pair production
- C. Photodisintegration
- D. Coherent transmission only

42. Exam 13 safety case 21: Why should scan coverage be limited to the indicated anatomy?

- A. Coverage has no relationship to dose
- B. Short coverage always increases CTDI_{vol}
- C. Longer coverage directly increases dose-length product
- D. Coverage controls only window width

43. Exam 13 image case 1: Which CT component converts transmitted x-ray energy into electrical signals?

- A. Slip-ring brush guard
- B. Patient table motor
- C. Laser positioning light
- D. Detector array

44. Exam 13 image case 2: What is the main advantage of slip-ring technology?

- A. Elimination of x-ray detectors
- B. Continuous gantry rotation for helical acquisition
- C. Direct storage of images on film
- D. Removal of the reconstruction computer

45. Exam 13 image case 3: Decreasing display field of view while keeping matrix size constant has what effect?

- A. Larger pixels and lower sampling
- B. Longer scan time without pixel change
- C. Smaller pixels and improved displayed spatial sampling
- D. Higher pitch and thicker detectors

46. Exam 13 image case 4: Which reconstruction approach generally reduces noise at a comparable dose?

- A. Iterative reconstruction
- B. Unfiltered projection display
- C. Scout imaging only
- D. Maximum window width

47. Exam 13 image case 5: What does window level primarily control?

- A. The number of detector rows
- B. The center CT number displayed as gray
- C. The table travel per rotation
- D. The acquired slice thickness

48. Exam 13 image case 6: What does window width primarily control?

- A. The gantry rotation direction
- B. The injected contrast volume
- C. The number of scout images
- D. The range of CT numbers displayed

49. Exam 13 image case 7: Which artifact commonly appears as concentric circles?

- A. Ring artifact from detector calibration error
- B. Motion artifact from breathing
- C. Partial-volume artifact at edges
- D. Stair-step artifact on reformations

50. Exam 13 image case 8: Which postprocessing method emphasizes the highest attenuation voxels along a viewing ray?

- A. Maximum intensity projection
- B. Minimum intensity projection
- C. Surface averaging projection
- D. Simple axial interpolation

51. Exam 13 image case 9: Which factor most directly improves temporal resolution?

- A. Larger display field of view
- B. Wider reconstruction interval
- C. Higher window level
- D. Shorter effective gantry rotation time

52. Exam 13 image case 10: What is the purpose of a CT number linearity test?

- A. Measure only table weight capacity
- B. Verify predictable CT numbers across materials
- C. Confirm contrast injector pressure
- D. Test the room intercom volume

53. Exam 13 image case 11: Which artifact is reduced by removing metal when possible and using metal-artifact reduction?

- A. Rings from detector drift
- B. Motion from respiration
- C. Streaking from severe attenuation and photon starvation
- D. Aliasing from slow table travel

54. Exam 13 image case 12: What distinguishes raw data from image data?

- A. Raw data are already windowed screenshots
- B. Image data contain no pixel values
- C. Image data alone change detector collimation
- D. Raw data can support retrospective reconstruction

55. Exam 13 image case 13: Which format supports standardized medical image communication?

- A. ASCII-only text
- B. JPEG camera metadata
- C. DICOM
- D. Spreadsheet formulas

56. Exam 13 image case 14: Which CT component converts transmitted x-ray energy into electrical signals?

- A. Detector array
- B. Slip-ring brush guard
- C. Patient table motor
- D. Laser positioning light

57. Exam 13 image case 15: What is the main advantage of slip-ring technology?

- A. Elimination of x-ray detectors
- B. Continuous gantry rotation for helical acquisition

- C. Direct storage of images on film
- D. Removal of the reconstruction computer

58. Exam 13 image case 16: Decreasing display field of view while keeping matrix size constant has what effect?

- A. Larger pixels and lower sampling
- B. Longer scan time without pixel change
- C. Higher pitch and thicker detectors
- D. Smaller pixels and improved displayed spatial sampling

59. Exam 13 image case 17: Which reconstruction approach generally reduces noise at a comparable dose?

- A. Iterative reconstruction
- B. Unfiltered projection display
- C. Scout imaging only
- D. Maximum window width

60. Exam 13 image case 18: What does window level primarily control?

- A. The number of detector rows
- B. The center CT number displayed as gray
- C. The table travel per rotation
- D. The acquired slice thickness

61. Exam 13 image case 19: What does window width primarily control?

- A. The gantry rotation direction
- B. The injected contrast volume
- C. The range of CT numbers displayed

D. The number of scout images

62. Exam 13 image case 20: Which artifact commonly appears as concentric circles?

- A. Motion artifact from breathing
- B. Partial-volume artifact at edges
- C. Ring artifact from detector calibration error
- D. Stair-step artifact on reformations

63. Exam 13 image case 21: Which postprocessing method emphasizes the highest attenuation voxels along a viewing ray?

- A. Minimum intensity projection
- B. Maximum intensity projection
- C. Surface averaging projection
- D. Simple axial interpolation

64. Exam 13 image case 22: Which factor most directly improves temporal resolution?

- A. Larger display field of view
- B. Wider reconstruction interval
- C. Higher window level
- D. Shorter effective gantry rotation time

65. Exam 13 image case 23: What is the purpose of a CT number linearity test?

- A. Verify predictable CT numbers across materials
- B. Measure only table weight capacity
- C. Confirm contrast injector pressure
- D. Test the room intercom volume

66. Exam 13 image case 24: Which artifact is reduced by removing metal when possible and using metal-artifact reduction?

- A. Rings from detector drift
- B. Motion from respiration
- C. Aliasing from slow table travel
- D. Streaking from severe attenuation and photon starvation

67. Exam 13 image case 25: What distinguishes raw data from image data?

- A. Raw data can support retrospective reconstruction
- B. Raw data are already windowed screenshots
- C. Image data contain no pixel values
- D. Image data alone change detector collimation

68. Exam 13 image case 26: Which format supports standardized medical image communication?

- A. ASCII-only text
- B. DICOM
- C. JPEG camera metadata
- D. Spreadsheet formulas

69. Exam 13 image case 27: Which CT component converts transmitted x-ray energy into electrical signals?

- A. Slip-ring brush guard
- B. Patient table motor
- C. Detector array
- D. Laser positioning light

70. Exam 13 image case 28: What is the main advantage of slip-ring technology?

- A. Elimination of x-ray detectors
- B. Continuous gantry rotation for helical acquisition
- C. Direct storage of images on film
- D. Removal of the reconstruction computer

71. Exam 13 image case 29: Decreasing display field of view while keeping matrix size constant has what effect?

- A. Larger pixels and lower sampling
- B. Longer scan time without pixel change
- C. Smaller pixels and improved displayed spatial sampling
- D. Higher pitch and thicker detectors

72. Exam 13 image case 30: Which reconstruction approach generally reduces noise at a comparable dose?

- A. Iterative reconstruction
- B. Unfiltered projection display
- C. Scout imaging only
- D. Maximum window width

73. Exam 13 image case 31: What does window level primarily control?

- A. The number of detector rows
- B. The table travel per rotation
- C. The acquired slice thickness
- D. The center CT number displayed as gray

74. Exam 13 image case 32: What does window width primarily control?

- A. The gantry rotation direction
- B. The injected contrast volume
- C. The number of scout images
- D. The range of CT numbers displayed

75. Exam 13 image case 33: Which artifact commonly appears as concentric circles?

- A. Ring artifact from detector calibration error
- B. Motion artifact from breathing
- C. Partial-volume artifact at edges
- D. Stair-step artifact on reformations

76. Exam 13 image case 34: Which postprocessing method emphasizes the highest attenuation voxels along a viewing ray?

- A. Minimum intensity projection
- B. Surface averaging projection
- C. Maximum intensity projection
- D. Simple axial interpolation

77. Exam 13 image case 35: Which factor most directly improves temporal resolution?

- A. Larger display field of view
- B. Shorter effective gantry rotation time
- C. Wider reconstruction interval
- D. Higher window level

78. Exam 13 image case 36: What is the purpose of a CT number linearity test?

- A. Measure only table weight capacity
- B. Verify predictable CT numbers across materials

- C. Confirm contrast injector pressure
- D. Test the room intercom volume

79. Exam 13 image case 37: Which artifact is reduced by removing metal when possible and using metal-artifact reduction?

- A. Rings from detector drift
- B. Motion from respiration
- C. Aliasing from slow table travel
- D. Streaking from severe attenuation and photon starvation

80. Exam 13 image case 38: What distinguishes raw data from image data?

- A. Raw data are already windowed screenshots
- B. Image data contain no pixel values
- C. Raw data can support retrospective reconstruction
- D. Image data alone change detector collimation

81. Exam 13 image case 39: Which format supports standardized medical image communication?

- A. DICOM
- B. ASCII-only text
- C. JPEG camera metadata
- D. Spreadsheet formulas

82. Exam 13 image case 40: Which CT component converts transmitted x-ray energy into electrical signals?

- A. Slip-ring brush guard
- B. Patient table motor
- C. Detector array

D. Laser positioning light

83. Exam 13 image case 41: What is the main advantage of slip-ring technology?

- A. Elimination of x-ray detectors
- B. Direct storage of images on film
- C. Removal of the reconstruction computer
- D. Continuous gantry rotation for helical acquisition

84. Exam 13 image case 42: Decreasing display field of view while keeping matrix size constant has what effect?

- A. Smaller pixels and improved displayed spatial sampling
- B. Larger pixels and lower sampling
- C. Longer scan time without pixel change
- D. Higher pitch and thicker detectors

85. Exam 13 image case 43: Which reconstruction approach generally reduces noise at a comparable dose?

- A. Unfiltered projection display
- B. Iterative reconstruction
- C. Scout imaging only
- D. Maximum window width

86. Exam 13 image case 44: What does window level primarily control?

- A. The number of detector rows
- B. The center CT number displayed as gray
- C. The table travel per rotation
- D. The acquired slice thickness

87. Exam 13 image case 45: What does window width primarily control?

- A. The gantry rotation direction
- B. The injected contrast volume
- C. The range of CT numbers displayed
- D. The number of scout images

88. Exam 13 image case 46: Which artifact commonly appears as concentric circles?

- A. Ring artifact from detector calibration error
- B. Motion artifact from breathing
- C. Partial-volume artifact at edges
- D. Stair-step artifact on reformations

89. Exam 13 image case 47: Which postprocessing method emphasizes the highest attenuation voxels along a viewing ray?

- A. Minimum intensity projection
- B. Surface averaging projection
- C. Simple axial interpolation
- D. Maximum intensity projection

90. Exam 13 image case 48: Which factor most directly improves temporal resolution?

- A. Larger display field of view
- B. Wider reconstruction interval
- C. Shorter effective gantry rotation time
- D. Higher window level

91. Exam 13 image case 49: What is the purpose of a CT number linearity test?

- A. Measure only table weight capacity
- B. Confirm contrast injector pressure
- C. Test the room intercom volume
- D. Verify predictable CT numbers across materials

92. Exam 13 image case 50: Which artifact is reduced by removing metal when possible and using metal-artifact reduction?

- A. Streaking from severe attenuation and photon starvation
- B. Rings from detector drift
- C. Motion from respiration
- D. Aliasing from slow table travel

93. Exam 13 image case 51: What distinguishes raw data from image data?

- A. Raw data are already windowed screenshots
- B. Raw data can support retrospective reconstruction
- C. Image data contain no pixel values
- D. Image data alone change detector collimation

94. Exam 13 image case 52: Which format supports standardized medical image communication?

- A. DICOM
- B. ASCII-only text
- C. JPEG camera metadata
- D. Spreadsheet formulas

95. For soft-tissue neck CT, which anatomy should be included and evaluated most directly?

- A. unrelated superficial soft tissues only
- B. pharynx, larynx, and deep spaces
- C. a distant joint outside the ordered region
- D. only the scout image without diagnostic sections

96. Which protocol choice is most appropriate when performing multiphase liver CT?

- A. use thick images only and omit reformations
- B. apply the same noncontrast protocol to every indication
- C. acquire the clinically indicated contrast phases
- D. limit coverage before the target anatomy is included

97. The principal diagnostic concern prompting pancreatic protocol CT is which condition?

- A. an unrelated condition outside the scanned region
- B. a disorder assessed only with plain radiography
- C. a finding that cannot involve the target anatomy
- D. pancreatic mass

98. For adrenal CT, which anatomy should be included and evaluated most directly?

- A. unrelated superficial soft tissues only
- B. adrenal glands
- C. a distant joint outside the ordered region
- D. only the scout image without diagnostic sections

99. Which protocol choice is most appropriate when performing renal stone CT?

- A. use thick images only and omit reformations

- B. apply the same noncontrast protocol to every indication
- C. limit coverage before the target anatomy is included
- D. use noncontrast thin data with dose optimization

100. The principal diagnostic concern prompting CT enterography is which condition?

- A. an unrelated condition outside the scanned region
- B. a disorder assessed only with plain radiography
- C. active bowel inflammation
- D. a finding that cannot involve the target anatomy

101. For CT colonography, which anatomy should be included and evaluated most directly?

- A. distended colon
- B. unrelated superficial soft tissues only
- C. a distant joint outside the ordered region
- D. only the scout image without diagnostic sections

102. Which protocol choice is most appropriate when performing CT urogram?

- A. use thick images only and omit reformations
- B. include an excretory phase when clinically indicated
- C. apply the same noncontrast protocol to every indication
- D. limit coverage before the target anatomy is included

103. The principal diagnostic concern prompting abdominopelvic trauma CT is which condition?

- A. an unrelated condition outside the scanned region
- B. a disorder assessed only with plain radiography
- C. a finding that cannot involve the target anatomy
- D. traumatic injury

104. For lower-extremity CTA, which anatomy should be included and evaluated most directly?

- A. unrelated superficial soft tissues only
- B. a distant joint outside the ordered region
- C. arterial runoff vessels
- D. only the scout image without diagnostic sections

105. Which protocol choice is most appropriate when performing TAVR planning CT?

- A. use thick images only and omit reformations
- B. apply the same noncontrast protocol to every indication
- C. limit coverage before the target anatomy is included
- D. use ECG-related root imaging and vascular coverage

106. The principal diagnostic concern prompting noncontrast head CT is which condition?

- A. acute intracranial hemorrhage
- B. an unrelated condition outside the scanned region
- C. a disorder assessed only with plain radiography
- D. a finding that cannot involve the target anatomy

107. For CT brain perfusion, which anatomy should be included and evaluated most directly?

- A. cerebral hemispheres
- B. unrelated superficial soft tissues only
- C. a distant joint outside the ordered region
- D. only the scout image without diagnostic sections

108. Which protocol choice is most appropriate when performing temporal bone CT?

- A. use thick images only and omit reformations
- B. apply the same noncontrast protocol to every indication
- C. use thin sections with a high-resolution bone algorithm
- D. limit coverage before the target anatomy is included

109. The principal diagnostic concern prompting orbital CT is which condition?

- A. an unrelated condition outside the scanned region
- B. orbital trauma or inflammation
- C. a disorder assessed only with plain radiography
- D. a finding that cannot involve the target anatomy

110. For sinus CT, which anatomy should be included and evaluated most directly?

- A. unrelated superficial soft tissues only
- B. ostiomeatal complexes
- C. a distant joint outside the ordered region
- D. only the scout image without diagnostic sections

111. Which protocol choice is most appropriate when performing maxillofacial CT?

- A. use thick images only and omit reformations
- B. apply the same noncontrast protocol to every indication
- C. limit coverage before the target anatomy is included
- D. include the entire facial skeleton with bone reformations

112. The principal diagnostic concern prompting cervical spine CT is which condition?

- A. an unrelated condition outside the scanned region

- B. a disorder assessed only with plain radiography
- C. traumatic fracture
- D. a finding that cannot involve the target anatomy

113. For lumbar spine CT, which anatomy should be included and evaluated most directly?

- A. lumbar vertebrae and canal
- B. unrelated superficial soft tissues only
- C. a distant joint outside the ordered region
- D. only the scout image without diagnostic sections

114. Which protocol choice is most appropriate when performing shoulder CT?

- A. use thick images only and omit reformations
- B. apply the same noncontrast protocol to every indication
- C. limit coverage before the target anatomy is included
- D. use thin isotropic data for multiplanar review

115. The principal diagnostic concern prompting CT pulmonary angiography is which condition?

- A. an unrelated condition outside the scanned region
- B. a disorder assessed only with plain radiography
- C. pulmonary embolism
- D. a finding that cannot involve the target anatomy

116. For HRCT chest, which anatomy should be included and evaluated most directly?

- A. secondary pulmonary lobules
- B. unrelated superficial soft tissues only
- C. a distant joint outside the ordered region
- D. only the scout image without diagnostic sections

117. Which protocol choice is most appropriate when performing coronary CT angiography?

- A. use thick images only and omit reformations
- B. coordinate acquisition with the cardiac cycle
- C. apply the same noncontrast protocol to every indication
- D. limit coverage before the target anatomy is included

118. The principal diagnostic concern prompting low-dose lung screening is which condition?

- A. an unrelated condition outside the scanned region
- B. a disorder assessed only with plain radiography
- C. a finding that cannot involve the target anatomy
- D. pulmonary nodules

119. For soft-tissue neck CT, which anatomy should be included and evaluated most directly?

- A. unrelated superficial soft tissues only
- B. a distant joint outside the ordered region
- C. pharynx, larynx, and deep spaces
- D. only the scout image without diagnostic sections

120. Which protocol choice is most appropriate when performing multiphase liver CT?

- A. use thick images only and omit reformations
- B. acquire the clinically indicated contrast phases
- C. apply the same noncontrast protocol to every indication
- D. limit coverage before the target anatomy is included

121. The principal diagnostic concern prompting pancreatic protocol CT is which condition?

- A. pancreatic mass
- B. an unrelated condition outside the scanned region
- C. a disorder assessed only with plain radiography
- D. a finding that cannot involve the target anatomy

122. For adrenal CT, which anatomy should be included and evaluated most directly?

- A. unrelated superficial soft tissues only
- B. adrenal glands
- C. a distant joint outside the ordered region
- D. only the scout image without diagnostic sections

123. Which protocol choice is most appropriate when performing renal stone CT?

- A. use thick images only and omit reformations
- B. apply the same noncontrast protocol to every indication
- C. use noncontrast thin data with dose optimization
- D. limit coverage before the target anatomy is included

124. The principal diagnostic concern prompting CT enterography is which condition?

- A. active bowel inflammation
- B. an unrelated condition outside the scanned region
- C. a disorder assessed only with plain radiography
- D. a finding that cannot involve the target anatomy

125. For CT colonography, which anatomy should be included and evaluated most directly?

- A. unrelated superficial soft tissues only

- B. a distant joint outside the ordered region
- C. only the scout image without diagnostic sections
- D. distended colon

126. Which protocol choice is most appropriate when performing CT urogram?

- A. include an excretory phase when clinically indicated
- B. use thick images only and omit reformations
- C. apply the same noncontrast protocol to every indication
- D. limit coverage before the target anatomy is included

127. The principal diagnostic concern prompting abdominopelvic trauma CT is which condition?

- A. an unrelated condition outside the scanned region
- B. a disorder assessed only with plain radiography
- C. a finding that cannot involve the target anatomy
- D. traumatic injury

128. For lower-extremity CTA, which anatomy should be included and evaluated most directly?

- A. unrelated superficial soft tissues only
- B. a distant joint outside the ordered region
- C. arterial runoff vessels
- D. only the scout image without diagnostic sections

129. Which protocol choice is most appropriate when performing TAVR planning CT?

- A. use thick images only and omit reformations
- B. use ECG-related root imaging and vascular coverage
- C. apply the same noncontrast protocol to every indication
- D. limit coverage before the target anatomy is included

130. The principal diagnostic concern prompting noncontrast head CT is which condition?

- A. an unrelated condition outside the scanned region
- B. a disorder assessed only with plain radiography
- C. a finding that cannot involve the target anatomy
- D. acute intracranial hemorrhage

131. For CT brain perfusion, which anatomy should be included and evaluated most directly?

- A. cerebral hemispheres
- B. unrelated superficial soft tissues only
- C. a distant joint outside the ordered region
- D. only the scout image without diagnostic sections

132. Which protocol choice is most appropriate when performing temporal bone CT?

- A. use thick images only and omit reformations
- B. apply the same noncontrast protocol to every indication
- C. use thin sections with a high-resolution bone algorithm
- D. limit coverage before the target anatomy is included

133. The principal diagnostic concern prompting orbital CT is which condition?

- A. an unrelated condition outside the scanned region
- B. orbital trauma or inflammation
- C. a disorder assessed only with plain radiography
- D. a finding that cannot involve the target anatomy

134. For sinus CT, which anatomy should be included and evaluated most directly?

- A. unrelated superficial soft tissues only
- B. a distant joint outside the ordered region
- C. only the scout image without diagnostic sections
- D. ostiomeatal complexes

135. Which protocol choice is most appropriate when performing maxillofacial CT?

- A. use thick images only and omit reformations
- B. apply the same noncontrast protocol to every indication
- C. include the entire facial skeleton with bone reformations
- D. limit coverage before the target anatomy is included

136. The principal diagnostic concern prompting cervical spine CT is which condition?

- A. traumatic fracture
- B. an unrelated condition outside the scanned region
- C. a disorder assessed only with plain radiography
- D. a finding that cannot involve the target anatomy

137. For lumbar spine CT, which anatomy should be included and evaluated most directly?

- A. unrelated superficial soft tissues only
- B. lumbar vertebrae and canal
- C. a distant joint outside the ordered region
- D. only the scout image without diagnostic sections

138. Which protocol choice is most appropriate when performing shoulder CT?

- A. use thick images only and omit reformations

- B. use thin isotropic data for multiplanar review
- C. apply the same noncontrast protocol to every indication
- D. limit coverage before the target anatomy is included

139. The principal diagnostic concern prompting CT pulmonary angiography is which condition?

- A. pulmonary embolism
- B. an unrelated condition outside the scanned region
- C. a disorder assessed only with plain radiography
- D. a finding that cannot involve the target anatomy

140. For HRCT chest, which anatomy should be included and evaluated most directly?

- A. unrelated superficial soft tissues only
- B. a distant joint outside the ordered region
- C. secondary pulmonary lobules
- D. only the scout image without diagnostic sections

141. Which protocol choice is most appropriate when performing coronary CT angiography?

- A. use thick images only and omit reformations
- B. apply the same noncontrast protocol to every indication
- C. limit coverage before the target anatomy is included
- D. coordinate acquisition with the cardiac cycle

142. The principal diagnostic concern prompting low-dose lung screening is which condition?

- A. an unrelated condition outside the scanned region
- B. pulmonary nodules
- C. a disorder assessed only with plain radiography
- D. a finding that cannot involve the target anatomy

143. For soft-tissue neck CT, which anatomy should be included and evaluated most directly?

- A. unrelated superficial soft tissues only
- B. a distant joint outside the ordered region
- C. only the scout image without diagnostic sections
- D. pharynx, larynx, and deep spaces

144. Which protocol choice is most appropriate when performing multiphase liver CT?

- A. use thick images only and omit reformations
- B. apply the same noncontrast protocol to every indication
- C. acquire the clinically indicated contrast phases
- D. limit coverage before the target anatomy is included

145. The principal diagnostic concern prompting pancreatic protocol CT is which condition?

- A. pancreatic mass
- B. an unrelated condition outside the scanned region
- C. a disorder assessed only with plain radiography
- D. a finding that cannot involve the target anatomy

146. For adrenal CT, which anatomy should be included and evaluated most directly?

- A. unrelated superficial soft tissues only
- B. a distant joint outside the ordered region
- C. only the scout image without diagnostic sections
- D. adrenal glands

147. Which protocol choice is most appropriate when performing renal stone CT?

- A. use noncontrast thin data with dose optimization
- B. use thick images only and omit reformations
- C. apply the same noncontrast protocol to every indication
- D. limit coverage before the target anatomy is included

148. The principal diagnostic concern prompting CT enterography is which condition?

- A. an unrelated condition outside the scanned region
- B. active bowel inflammation
- C. a disorder assessed only with plain radiography
- D. a finding that cannot involve the target anatomy

149. For CT colonography, which anatomy should be included and evaluated most directly?

- A. unrelated superficial soft tissues only
- B. a distant joint outside the ordered region
- C. distended colon
- D. only the scout image without diagnostic sections

150. Which protocol choice is most appropriate when performing CT urogram?

- A. use thick images only and omit reformations
- B. apply the same noncontrast protocol to every indication
- C. include an excretory phase when clinically indicated
- D. limit coverage before the target anatomy is included

151. The principal diagnostic concern prompting abdominopelvic trauma CT is which condition?

- A. an unrelated condition outside the scanned region

- B. a disorder assessed only with plain radiography
- C. a finding that cannot involve the target anatomy
- D. traumatic injury

152. For lower-extremity CTA, which anatomy should be included and evaluated most directly?

- A. arterial runoff vessels
- B. unrelated superficial soft tissues only
- C. a distant joint outside the ordered region
- D. only the scout image without diagnostic sections

153. Which protocol choice is most appropriate when performing TAVR planning CT?

- A. use thick images only and omit reformations
- B. use ECG-related root imaging and vascular coverage
- C. apply the same noncontrast protocol to every indication
- D. limit coverage before the target anatomy is included

154. The principal diagnostic concern prompting noncontrast head CT is which condition?

- A. an unrelated condition outside the scanned region
- B. acute intracranial hemorrhage
- C. a disorder assessed only with plain radiography
- D. a finding that cannot involve the target anatomy

155. For CT brain perfusion, which anatomy should be included and evaluated most directly?

- A. cerebral hemispheres
- B. unrelated superficial soft tissues only
- C. a distant joint outside the ordered region
- D. only the scout image without diagnostic sections

156. Which protocol choice is most appropriate when performing temporal bone CT?

- A. use thick images only and omit reformations
- B. apply the same noncontrast protocol to every indication
- C. limit coverage before the target anatomy is included
- D. use thin sections with a high-resolution bone algorithm

157. The principal diagnostic concern prompting orbital CT is which condition?

- A. an unrelated condition outside the scanned region
- B. a disorder assessed only with plain radiography
- C. orbital trauma or inflammation
- D. a finding that cannot involve the target anatomy

158. For sinus CT, which anatomy should be included and evaluated most directly?

- A. unrelated superficial soft tissues only
- B. ostiomeatal complexes
- C. a distant joint outside the ordered region
- D. only the scout image without diagnostic sections

159. Which protocol choice is most appropriate when performing maxillofacial CT?

- A. include the entire facial skeleton with bone reformations
- B. use thick images only and omit reformations
- C. apply the same noncontrast protocol to every indication
- D. limit coverage before the target anatomy is included

160. The principal diagnostic concern prompting cervical spine CT is which condition?

- A. an unrelated condition outside the scanned region
- B. a disorder assessed only with plain radiography
- C. a finding that cannot involve the target anatomy
- D. traumatic fracture

161. For lumbar spine CT, which anatomy should be included and evaluated most directly?

- A. unrelated superficial soft tissues only
- B. lumbar vertebrae and canal
- C. a distant joint outside the ordered region
- D. only the scout image without diagnostic sections

162. Which protocol choice is most appropriate when performing shoulder CT?

- A. use thick images only and omit reformations
- B. apply the same noncontrast protocol to every indication
- C. use thin isotropic data for multiplanar review
- D. limit coverage before the target anatomy is included

163. The principal diagnostic concern prompting CT pulmonary angiography is which condition?

- A. an unrelated condition outside the scanned region
- B. a disorder assessed only with plain radiography
- C. pulmonary embolism
- D. a finding that cannot involve the target anatomy

164. For HRCT chest, which anatomy should be included and evaluated most directly?

- A. unrelated superficial soft tissues only

- B. a distant joint outside the ordered region
- C. only the scout image without diagnostic sections
- D. secondary pulmonary lobules

165. Which protocol choice is most appropriate when performing coronary CT angiography?

- A. coordinate acquisition with the cardiac cycle
- B. use thick images only and omit reformations
- C. apply the same noncontrast protocol to every indication
- D. limit coverage before the target anatomy is included

Practice Exam 13: Answer Key and Explanations

1. D — Stopping injection limits additional infiltration; the site and distal circulation then require prompt assessment. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

2. A — Hand hygiene and aseptic preparation reduce transfer of organisms during vascular access. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

3. B — A qualified interpreter supports accurate education and valid consent without placing responsibility on family members. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

4. C — Injection documentation creates a traceable record of access, agent, dose, and delivery conditions. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

5. D — A capable patient may refuse; the refusal should be respected, documented, and communicated for an alternative plan. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

6. A — Chest tubing must remain patent, secured, and correctly positioned during movement to prevent dislodgment or impaired drainage. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

7. B — Immediate assessment and emergency activation take priority over completing images when responsiveness is lost. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

8. D — eGFR estimates filtration and helps assess renal status before iodinated contrast administration. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

9. C — Wheezing with hypotension indicates a severe acute reaction requiring immediate airway and emergency management. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

10. C — A time-out prevents wrong-patient and wrong-procedure errors by confirming essential identifiers and the planned examination. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

11. B — Stopping injection limits additional infiltration; the site and distal circulation then require prompt assessment. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

12. D — Hand hygiene and aseptic preparation reduce transfer of organisms during vascular access. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic

reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

13. A — A qualified interpreter supports accurate education and valid consent without placing responsibility on family members. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

14. D — Injection documentation creates a traceable record of access, agent, dose, and delivery conditions. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

15. A — A capable patient may refuse; the refusal should be respected, documented, and communicated for an alternative plan. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

16. C — Chest tubing must remain patent, secured, and correctly positioned during movement to prevent dislodgment or impaired drainage. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

17. B — Immediate assessment and emergency activation take priority over completing images when responsiveness is lost. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

18. A — eGFR estimates filtration and helps assess renal status before iodinated contrast administration. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

19. D — Wheezing with hypotension indicates a severe acute reaction requiring immediate airway and emergency management. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

20. C — A time-out prevents wrong-patient and wrong-procedure errors by confirming essential identifiers and the planned examination. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

21. B — Stopping injection limits additional infiltration; the site and distal circulation then require prompt assessment. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

22. A — Children require tailored technique and justified phases because their size and radiosensitivity differ from adults. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

23. C — Reducing mAs decreases photon output and dose, although image noise may rise and diagnostic adequacy must be maintained. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

24. B — DLP is CTDI_{vol} multiplied by scan length and reflects scanner output over the examination range. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

25. D — Tube current modulation varies output according to attenuation to maintain image quality with more efficient dose use. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

26. A — Off-centering changes how the scout and bow-tie filter represent the patient, degrading dose modulation and image uniformity. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

27. B — Compton interactions redirect photons and are the principal source of scatter reaching personnel near the patient. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic

reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

28. C — Because DLP incorporates scan length, unnecessary z-axis coverage adds radiation without diagnostic benefit. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

29. D — Children require tailored technique and justified phases because their size and radiosensitivity differ from adults. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

30. D — Reducing mAs decreases photon output and dose, although image noise may rise and diagnostic adequacy must be maintained. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

31. C — DLP is CTDI_{vol} multiplied by scan length and reflects scanner output over the examination range. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

32. B — Tube current modulation varies output according to attenuation to maintain image quality with more efficient dose use. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

33. A — Off-centering changes how the scout and bow-tie filter represent the patient, degrading dose modulation and image uniformity. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

34. A — Compton interactions redirect photons and are the principal source of scatter reaching personnel near the patient. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

35. B — Because DLP incorporates scan length, unnecessary z-axis coverage adds radiation without diagnostic benefit. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

36. D — Children require tailored technique and justified phases because their size and radiosensitivity differ from adults. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

37. C — Reducing mAs decreases photon output and dose, although image noise may rise and diagnostic adequacy must be maintained. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

38. C — DLP is CTDI_{vol} multiplied by scan length and reflects scanner output over the examination range. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

39. D — Tube current modulation varies output according to attenuation to maintain image quality with more efficient dose use. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

40. B — Off-centering changes how the scout and bow-tie filter represent the patient, degrading dose modulation and image uniformity. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

41. A — Compton interactions redirect photons and are the principal source of scatter reaching personnel near the patient. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

42. C — Because DLP incorporates scan length, unnecessary z-axis coverage adds radiation without diagnostic benefit. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce

diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

43. D — Detectors receive the remnant beam and convert its energy into signals for the data acquisition system. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

44. B — Slip rings transfer power and data without winding cables, enabling continuous rotation and helical scanning. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

45. C — Pixel dimension equals DFOV divided by matrix size, so a smaller DFOV produces smaller pixels. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

46. A — Iterative methods model acquisition and noise, often reducing noise compared with filtered backprojection. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

47. B — Window level centers the displayed grayscale range on a selected CT number. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

48. D — Window width sets the span of CT numbers mapped across the available grayscale. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

49. A — A miscalibrated or failing detector repeatedly contributes error at the same radius, producing rings. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

50. A — MIP selects the maximum voxel value along each ray and is useful for contrast-enhanced vessels. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

51. D — Temporal resolution improves when acquisition data for an image are collected over a shorter interval. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

52. B — Linearity testing confirms that measured attenuation values follow expected CT numbers for reference materials. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

53. C — Dense metal causes beam hardening and photon starvation, often producing bright and dark streaks. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

54. D — Projection measurements are raw data and can be reconstructed again with different parameters. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

55. C — DICOM standardizes image objects and related information for transfer among imaging systems and archives. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

56. A — Detectors receive the remnant beam and convert its energy into signals for the data acquisition system. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

57. B — Slip rings transfer power and data without winding cables, enabling continuous rotation and helical scanning. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce

diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

58. D — Pixel dimension equals DFOV divided by matrix size, so a smaller DFOV produces smaller pixels. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

59. A — Iterative methods model acquisition and noise, often reducing noise compared with filtered backprojection. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

60. B — Window level centers the displayed grayscale range on a selected CT number. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

61. C — Window width sets the span of CT numbers mapped across the available grayscale. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

62. C — A miscalibrated or failing detector repeatedly contributes error at the same radius, producing rings. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

63. B — MIP selects the maximum voxel value along each ray and is useful for contrast-enhanced vessels. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

64. D — Temporal resolution improves when acquisition data for an image are collected over a shorter interval. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

65. A — Linearity testing confirms that measured attenuation values follow expected CT numbers for reference materials. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

66. D — Dense metal causes beam hardening and photon starvation, often producing bright and dark streaks. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

67. A — Projection measurements are raw data and can be reconstructed again with different parameters. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

68. B — DICOM standardizes image objects and related information for transfer among imaging systems and archives. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

69. C — Detectors receive the remnant beam and convert its energy into signals for the data acquisition system. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

70. B — Slip rings transfer power and data without winding cables, enabling continuous rotation and helical scanning. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

71. C — Pixel dimension equals DFOV divided by matrix size, so a smaller DFOV produces smaller pixels. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

72. A — Iterative methods model acquisition and noise, often reducing noise compared with filtered backprojection. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce

diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

73. D — Window level centers the displayed grayscale range on a selected CT number. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

74. D — Window width sets the span of CT numbers mapped across the available grayscale. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

75. A — A miscalibrated or failing detector repeatedly contributes error at the same radius, producing rings. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

76. C — MIP selects the maximum voxel value along each ray and is useful for contrast-enhanced vessels. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

77. B — Temporal resolution improves when acquisition data for an image are collected over a shorter interval. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

78. B — Linearity testing confirms that measured attenuation values follow expected CT numbers for reference materials. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

79. D — Dense metal causes beam hardening and photon starvation, often producing bright and dark streaks. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

80. C — Projection measurements are raw data and can be reconstructed again with different parameters. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

81. A — DICOM standardizes image objects and related information for transfer among imaging systems and archives. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

82. C — Detectors receive the remnant beam and convert its energy into signals for the data acquisition system. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

83. D — Slip rings transfer power and data without winding cables, enabling continuous rotation and helical scanning. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

84. A — Pixel dimension equals DFOV divided by matrix size, so a smaller DFOV produces smaller pixels. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

85. B — Iterative methods model acquisition and noise, often reducing noise compared with filtered backprojection. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

86. B — Window level centers the displayed grayscale range on a selected CT number. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

87. C — Window width sets the span of CT numbers mapped across the available grayscale. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without

solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

88. A — A miscalibrated or failing detector repeatedly contributes error at the same radius, producing rings. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

89. D — MIP selects the maximum voxel value along each ray and is useful for contrast-enhanced vessels. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

90. C — Temporal resolution improves when acquisition data for an image are collected over a shorter interval. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

91. D — Linearity testing confirms that measured attenuation values follow expected CT numbers for reference materials. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

92. A — Dense metal causes beam hardening and photon starvation, often producing bright and dark streaks. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

93. B — Projection measurements are raw data and can be reconstructed again with different parameters. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

94. A — DICOM standardizes image objects and related information for transfer among imaging systems and archives. This choice connects the clinical goal with the relevant acquisition, safety, or patient-care principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability without solving the issue. Careful protocol selection preserves useful information while avoiding unnecessary risk and repeat exposure.

95. B — The principal target of soft-tissue neck CT is pharynx, larynx, and deep spaces; complete coverage is required to evaluate infection or mass. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

96. C — For multiphase liver CT, the appropriate approach is to acquire the clinically indicated contrast phases, aligning acquisition with the diagnostic task of assessing hypervascular or hypovascular lesion. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

97. D — pancreatic protocol CT is designed to evaluate pancreatic mass in the pancreas and peripancreatic vessels, using protocol choices tailored to that clinical question. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

98. B — The principal target of adrenal CT is adrenal glands; complete coverage is required to evaluate indeterminate adrenal lesion. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

99. D — For renal stone CT, the appropriate approach is to use noncontrast thin data with dose optimization, aligning acquisition with the diagnostic task of assessing urinary calculus. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

100. C — CT enterography is designed to evaluate active bowel inflammation in the small bowel and mesentery, using protocol choices tailored to that clinical question. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

101. A — The principal target of CT colonography is distended colon; complete coverage is required to evaluate colonic polyp. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

102. B — For CT urogram, the appropriate approach is to include an excretory phase when clinically indicated, aligning acquisition with the diagnostic task of assessing urothelial abnormality. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

103. D — abdominopelvic trauma CT is designed to evaluate traumatic injury in the solid organs and mesentery, using protocol choices tailored to that clinical question. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

104. C — The principal target of lower-extremity CTA is arterial runoff vessels; complete coverage is required to evaluate stenosis or occlusion. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

105. D — For TAVR planning CT, the appropriate approach is to use ECG-related root imaging and vascular coverage, aligning acquisition with the diagnostic task of assessing valve and access measurements. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

106. A — noncontrast head CT is designed to evaluate acute intracranial hemorrhage in the basal ganglia, using protocol choices tailored to that clinical question. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

107. A — The principal target of CT brain perfusion is cerebral hemispheres; complete coverage is required to evaluate ischemic core and penumbra. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

108. C — For temporal bone CT, the appropriate approach is to use thin sections with a high-resolution bone algorithm, aligning acquisition with the diagnostic task of assessing fine osseous abnormality. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

109. B — orbital CT is designed to evaluate orbital trauma or inflammation in the globes and extraocular muscles, using protocol choices tailored to that clinical question. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

110. B — The principal target of sinus CT is ostiomeatal complexes; complete coverage is required to evaluate chronic inflammatory disease. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

111. D — For maxillofacial CT, the appropriate approach is to include the entire facial skeleton with bone reformations, aligning acquisition with the diagnostic task of assessing complex facial fracture. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

112. C — cervical spine CT is designed to evaluate traumatic fracture in the vertebral bodies and posterior elements, using protocol choices tailored to that clinical question. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

113. A — The principal target of lumbar spine CT is lumbar vertebrae and canal; complete coverage is required to evaluate osseous stenosis or fracture. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

114. D — For shoulder CT, the appropriate approach is to use thin isotropic data for multiplanar review, aligning acquisition with the diagnostic task of assessing complex fracture anatomy. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

115. C — CT pulmonary angiography is designed to evaluate pulmonary embolism in the pulmonary arteries, using protocol choices tailored to that clinical question. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

116. A — The principal target of HRCT chest is secondary pulmonary lobules; complete coverage is required to evaluate interstitial lung disease. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

117. B — For coronary CT angiography, the appropriate approach is to coordinate acquisition with the cardiac cycle, aligning acquisition with the diagnostic task of assessing coronary stenosis. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

118. D — low-dose lung screening is designed to evaluate pulmonary nodules in the entire lungs, using protocol choices tailored to that clinical question. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

119. C — The principal target of soft-tissue neck CT is pharynx, larynx, and deep spaces; complete coverage is required to evaluate infection or mass. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

120. B — For multiphase liver CT, the appropriate approach is to acquire the clinically indicated contrast phases, aligning acquisition with the diagnostic task of assessing hypervascular or hypovascular lesion. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

121. A — pancreatic protocol CT is designed to evaluate pancreatic mass in the pancreas and peripancreatic vessels, using protocol choices tailored to that clinical question. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

122. B — The principal target of adrenal CT is adrenal glands; complete coverage is required to evaluate indeterminate adrenal lesion. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

123. C — For renal stone CT, the appropriate approach is to use noncontrast thin data with dose optimization, aligning acquisition with the diagnostic task of assessing urinary calculus. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

124. A — CT enterography is designed to evaluate active bowel inflammation in the small bowel and mesentery, using protocol choices tailored to that clinical question. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

125. D — The principal target of CT colonography is distended colon; complete coverage is required to evaluate colonic polyp. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

126. A — For CT urogram, the appropriate approach is to include an excretory phase when clinically indicated, aligning acquisition with the diagnostic task of assessing urothelial abnormality. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

127. D — abdominopelvic trauma CT is designed to evaluate traumatic injury in the solid organs and mesentery, using protocol choices tailored to that clinical question. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

128. C — The principal target of lower-extremity CTA is arterial runoff vessels; complete coverage is required to evaluate stenosis or occlusion. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

129. B — For TAVR planning CT, the appropriate approach is to use ECG-related root imaging and vascular coverage, aligning acquisition with the diagnostic task of assessing valve and access measurements. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

130. D — noncontrast head CT is designed to evaluate acute intracranial hemorrhage in the basal ganglia, using protocol choices tailored to that clinical question. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

131. A — The principal target of CT brain perfusion is cerebral hemispheres; complete coverage is required to evaluate ischemic core and penumbra. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

132. C — For temporal bone CT, the appropriate approach is to use thin sections with a high-resolution bone algorithm, aligning acquisition with the diagnostic task of assessing fine osseous abnormality. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

133. B — orbital CT is designed to evaluate orbital trauma or inflammation in the globes and extraocular muscles, using protocol choices tailored to that clinical question. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

134. D — The principal target of sinus CT is ostiomeatal complexes; complete coverage is required to evaluate chronic inflammatory disease. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

135. C — For maxillofacial CT, the appropriate approach is to include the entire facial skeleton with bone reformations, aligning acquisition with the diagnostic task of assessing complex facial fracture. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

136. A — cervical spine CT is designed to evaluate traumatic fracture in the vertebral bodies and posterior elements, using protocol choices tailored to that clinical question. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

137. B — The principal target of lumbar spine CT is lumbar vertebrae and canal; complete coverage is required to evaluate osseous stenosis or fracture. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

138. B — For shoulder CT, the appropriate approach is to use thin isotropic data for multiplanar review, aligning acquisition with the diagnostic task of assessing complex fracture anatomy. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

139. A — CT pulmonary angiography is designed to evaluate pulmonary embolism in the pulmonary arteries, using protocol choices tailored to that clinical question. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

140. C — The principal target of HRCT chest is secondary pulmonary lobules; complete coverage is required to evaluate interstitial lung disease. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

141. D — For coronary CT angiography, the appropriate approach is to coordinate acquisition with the cardiac cycle, aligning acquisition with the diagnostic task of assessing coronary stenosis. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

142. B — low-dose lung screening is designed to evaluate pulmonary nodules in the entire lungs, using protocol choices tailored to that clinical question. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

143. D — The principal target of soft-tissue neck CT is pharynx, larynx, and deep spaces; complete coverage is required to evaluate infection or mass. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

144. C — For multiphase liver CT, the appropriate approach is to acquire the clinically indicated contrast phases, aligning acquisition with the diagnostic task of assessing hypervascular or hypovascular lesion. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

145. A — pancreatic protocol CT is designed to evaluate pancreatic mass in the pancreas and peripancreatic vessels, using protocol choices tailored to that clinical question. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

146. D — The principal target of adrenal CT is adrenal glands; complete coverage is required to evaluate indeterminate adrenal lesion. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

147. A — For renal stone CT, the appropriate approach is to use noncontrast thin data with dose optimization, aligning acquisition with the diagnostic task of assessing urinary calculus. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

148. B — CT enterography is designed to evaluate active bowel inflammation in the small bowel and mesentery, using protocol choices tailored to that clinical question. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

149. C — The principal target of CT colonography is distended colon; complete coverage is required to evaluate colonic polyp. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

150. C — For CT urogram, the appropriate approach is to include an excretory phase when clinically indicated, aligning acquisition with the diagnostic task of assessing urothelial abnormality. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

151. D — abdominopelvic trauma CT is designed to evaluate traumatic injury in the solid organs and mesentery, using protocol choices tailored to that clinical question. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

152. A — The principal target of lower-extremity CTA is arterial runoff vessels; complete coverage is required to evaluate stenosis or occlusion. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

153. B — For TAVR planning CT, the appropriate approach is to use ECG-related root imaging and vascular coverage, aligning acquisition with the diagnostic task of assessing valve and access measurements. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

154. B — noncontrast head CT is designed to evaluate acute intracranial hemorrhage in the basal ganglia, using protocol choices tailored to that clinical question. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

155. A — The principal target of CT brain perfusion is cerebral hemispheres; complete coverage is required to evaluate ischemic core and penumbra. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

156. D — For temporal bone CT, the appropriate approach is to use thin sections with a high-resolution bone algorithm, aligning acquisition with the diagnostic task of assessing fine osseous abnormality. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

157. C — orbital CT is designed to evaluate orbital trauma or inflammation in the globes and extraocular muscles, using protocol choices tailored to that clinical question. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

158. B — The principal target of sinus CT is ostiomeatal complexes; complete coverage is required to evaluate chronic inflammatory disease. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

159. A — For maxillofacial CT, the appropriate approach is to include the entire facial skeleton with bone reformations, aligning acquisition with the diagnostic task of assessing complex facial fracture. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

160. D — cervical spine CT is designed to evaluate traumatic fracture in the vertebral bodies and posterior elements, using protocol choices tailored to that clinical question. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

161. B — The principal target of lumbar spine CT is lumbar vertebrae and canal; complete coverage is required to evaluate osseous stenosis or fracture. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

162. C — For shoulder CT, the appropriate approach is to use thin isotropic data for multiplanar review, aligning acquisition with the diagnostic task of assessing complex fracture anatomy. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.

163. C — CT pulmonary angiography is designed to evaluate pulmonary embolism in the pulmonary arteries, using protocol choices tailored to that clinical question. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

164. D — The principal target of HRCT chest is secondary pulmonary lobules; complete coverage is required to evaluate interstitial lung disease. This choice connects the clinical goal with the relevant CT principle. The alternatives address a different problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging and avoids unnecessary repeat exposure.

165. A — For coronary CT angiography, the appropriate approach is to coordinate acquisition with the cardiac cycle, aligning acquisition with the diagnostic task of assessing coronary stenosis. This choice follows the relevant CT principle. The alternatives address another problem, reverse the expected relationship, or reduce diagnostic reliability. Applying the principle supports safe, consistent, patient-centered imaging.