Computed Tomography for Technologists.A Comprehensive Text 2nd edition Romans Test Bank

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1. What is the thickness of a cross-sectional CT slice called?
   A) *X* axis
   B) *Y* axis
   C) *Z* axis
   D) *Q* axis

2. What is the most common matrix size in CT?
   A) 128
   B) 256
   C) 512
   D) 1,024

3. The number of photons that interact with an object will increase with all of the following EXCEPT
   A) Increasing density of the object
   B) Increasing age of the object
   C) Increasing thickness of the object
   D) Increasing atomic number of the object

4. How are metals represented on a CT image?
   A) As white areas
   B) As black areas
   C) As grey areas

5. What are used to quantify the degree that a structure attenuates an x-ray beam?
   A) Attenuation coefficients
   B) Pixels
   C) Contrasting agents
   D) Hounsfield units

6. What are image artifacts?
   A) Substances used to create a temporary artificial density between objects
   B) Objects seen on a CT image that are not present in the object scanned
   C) The data that form the CT slice
   D) The photons in an x-ray beam

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7. Why does using a small pixel size reduce the likelihood of volume averaging?
   A) It limits the amount of data to be volume averaged.
   B) It decreases the thickness of the plane.
   C) It changes the temporal resolution.
   D) It increase beam attenuation.

8. Which directional term refers to movement toward the head?
   A) Inferior
   B) Anterior
   C) Posterior
   D) Superior

9. Which is not an advantage of CT over conventional radiography?
   A) The elimination of superimposed structures
   B) CT exams are less expensive, and exam time is shorter than conventional radiography
   C) The superior quality of the images
   D) The ability to differentiate small differences in density of anatomic structures and abnormalities

10. What is the term for the ability of an x-ray tube to withstand resultant heat?
    A) Kinetic energy
    B) Heat dissipation
    C) Heat capacity
    D) Thermal energy

11. In which part of the CT process are the data converted into shades of gray for viewing?
    A) Data acquisition
    B) Image reconstruction
    C) Image display

12. What is the name of the process in CT by which different attenuation values are averaged to produce one less accurate pixel reading?
    A) Volume averaging
    B) Pixel averaging
    C) *Z* axis averaging
    D) Image averaging

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13. What is another name for step-and-shoot scan mode?
    A) Spiral
    B) Volumetric
    C) Helical
    D) Axial

14. What is the name for each two-dimensional square in a CT slice?
    A) Pixel
    B) Matrix
    C) Cross section
    D) Cube

15. What is density?
    A) The number of photons that pass through a structure
    B) The degree to which an x-ray beam is reduced by an object
    C) The degree to which matter is concentrated
    D) The amount of x-ray beam that is absorbed per unit of thickness

16. What can be used to create a temporary artificial density difference between two objects on a CT image?
    A) Low-energy x-ray photons
    B) High-energy x-ray photons
    C) Contrast agents
    D) Artifacts

17. Which is a drawback of using thicker CT slices when imaging?
    A) They increase the likelihood of missing very small objects.
    B) They increase radiation dosage.
    C) They increase the number of slices that are produced.
    D) They decrease the pixel size.

18. Which directional term refers to movement toward the feet?
    A) Inferior
    B) Anterior
    C) Posterior
    D) Superior

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19. What is the primary reason for changing the image plane from axial to coronal?
    A) To eliminate volume averaging
    B) To attenuate the x-ray beam
    C) The anatomy of interest lies vertically rather than horizontally
    D) To reduce artifacts created by surrounding structures

20. What is the name for the area of the anode where the electrons strike and the x-ray beam is produced?
    A) Gantry
    B) Focal spot
    C) Space cloud
    D) Reconstruction processor

21. _____ resolution describes the ability of a system to define small objects distinctly.

22. An x-ray beam consists of bundles of energy known as _____.

23. _____ artifacts appear as dark streaks or vague areas of decreased density on a CT image.

24. The terms scan data and _____ data are used interchangeably to refer to the computer data waiting to be processed to create an image.

25. _____ refers to movement toward the sides of the body.

26. True or False? The degree to which an x-ray beam is reduced by an object is known as attenuation.
    A) True
    B) False

27. True or False? To differentiate adjacent objects on a CT image, there cannot be a density difference between the two objects.
    A) True
    B) False

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28. True or False? Artifacts always degrade the quality of an image.
    A) True
    B) False

29. True or False? The larger the object being scanned, the thinner the CT slice required.
    A) True
    B) False

30. True or False? The sagittal plane divides the body into right and left sections.
    A) True
    B) False

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Answer Key

1. C
2. C
3. B
4. A
5. D
6. B
7. A
8. D
9. B
10. C
11. C
12. A
13. D
14. A
15. C
16. C
17. A
18. A
19. C
20. B
21. Spatial
22. Photons
23. Beam-hardening
24. Raw
25. Lateral
26. A
27. B
28. A
29. B
30. A

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