

THE TUFFEST STUFF CT REGISTRY REVIEW SEMINAR
STUDY PAGES FOR REVIEW
THE CT IMAGING CHAIN

THE CT IMAGING CHAIN

1. Which of the following components is primarily responsible for the conversion of electrical impulses to binary data?
 - a. The ADC
 - b. The DAC
 - c. The CT Computer
 - d. The Detector System

Ans. a

2. Which of the following components is primarily responsible for the conversion of raw data to image data?
 - a. The ADC
 - b. The DAC
 - c. The CT Computer
 - d. The Detector System

Ans. c

3. Which of the following is received by the CT Detector System?
 - a. Convolved data
 - b. Raw data
 - c. Measurement data
 - d. Image data

Ans. c

4. Which of the following components is most responsible for determining Scan Field of View?
 - a. The Detector System
 - b. The Pre-patient collimator
 - c. The ADC
 - d. The Pre-detector collimator

Ans. b

5. Which of the following components is primarily responsible for hardening the beam?
 - a. The DAC
 - b. The ADC
 - c. The Beam Shaping Filter
 - d. The Detector System

Ans. C

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6. The conversion of electrical energy to electromagnetic energy most likely occurs within which of the following components?
- a. The x-ray tube
 - b. The CT Computer
 - c. The Detector System
 - d. The ADC

Ans. a

7. Which of the following components is primarily responsible for the geometry of the cone beam?
- a. The Pre-patient collimator
 - b. The Pre-detector collimator
 - c. The bow-tie filter
 - d. The DAC

Ans. b

8. Which of the following components is primarily responsible for determining slice thickness in SDCT systems?
- a. The Pre-detector collimator
 - b. The ADC
 - c. The CT Computer
 - d. The Pre-patient collimator

Ans. d

9. Within which of the following components does reconstruction take place?
- a. The ADC
 - b. The DAC
 - c. The CT Computer
 - d. The Detector System

Ans. c

10. Which of the following best describes where the functions of sampling, quantifying and coding take place?
- a. The ADC
 - b. The CT Computer
 - c. The DAC
 - d. The Detector System

Ans. A

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11. The conversion of binary data to CT Numbers most likely occurs within which of the following components?
- a. The Detector System
 - b. The ADC
 - c. The CT Computer
 - d. The DAC

Ans. c

12. Within which of the following components are CT Numbers converted to electrical impulses?
- a. The CT Computer
 - b. The DAC
 - c. The ADC
 - d. The Detector System

Ans. b

13. Which of the following best describes the output from the Array Processor?
- a. Projection data
 - b. Electrical impulses
 - c. CT Numbers
 - d. The digital image

Ans. C

14. Which of the following is primarily responsible for controlling SFOV?
- a. The pre-detector collimator
 - b. The ADC
 - c. The pre-patient collimator
 - d. The detector system

Ans. C

15. Within which of the following components does the conversion electrical E to Electromagnetic (EM) E occur?
- a. The x-ray tube
 - b. The high frequency generator
 - c. The rectification system
 - d. The ADC

Ans. A

16. The following component is where binary data are converted to CT Numbers.
- a. The ADC
 - b. The Array Processor
 - c. The DAC
 - d. The detector system

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Ans. B

17. CT numbers are back-projected within which of the following components?
- a. The DAC
 - b. The detector system
 - c. The ADC
 - d. The CT Computer

Ans. D

18. Which of the following components produces high E electricity making x-ray production possible?
- a. The CT Computer
 - b. The Array Processor
 - c. The Monitor
 - d. The High Frequency Generator

Ans. D

19. Which of the following components is primarily responsible for determining slice thickness in MDCT equipment?
1. The CT Computer
 2. The High Frequency Generator
 3. The Pre-detector collimator
 4. The DAC
 5. The Pre-patient collimator
- a. 1, 2, 4
 - b. 3, 5
 - c. 1, 2, 3
 - d. 2, 4

Ans. B

20. Within which of the following components do the functions Sample, Quantify, Code occur?
- a. The ADC
 - b. The DAC
 - c. The High Frequency Generator
 - d. The CT Computer

Ans. A

21. Which of the following components primarily controls the volume of the cone beam?
- a. The High Frequency Generator
 - b. The Beam Shaping Filter
 - c. The Pre-patient Collimator
 - d. The Pre-detector Collimator

Ans. D

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22. The production of EM energy most likely occurs within which of the following components?
- a. The Beam Shaping Filter
 - b. The X-ray Tube
 - c. The High Frequency Generator
 - d. The CT Computer

Ans. B

23. Which of the following components converts binary data to electrical impulses?
- a. The DAC
 - b. The ADC
 - c. The Array Processor
 - d. The CT Computer

Ans. A

24. The conversion of EM E to electrical impulses is most likely to occur within which of the following components?
- a. The beam shaping filter
 - b. The ADC
 - c. The Detector System
 - d. The DAC

Ans. C

25. Which of the following components makes it possible to look at pixel gray shades?
- a. The ADC
 - b. The DAC
 - c. The CT Computer
 - d. The Monitor

Ans. D

26. Which of the following components is responsible for removing low E photons from the beam?
- a. The beam shaping filter
 - b. The ADC
 - c. The Detector System
 - d. The DAC

Ans. A

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27. The location of reconstruction is most likely within which of the following components?

- a. The DAC
- b. The Monitor
- c. The High Frequency Generator
- d. The CT Computer

Ans. D

28. Compton & Photoelectric events are most likely to occur within which of the following components?

- a. The CT Computer
- b. The ADC
- c. The High Frequency Generator
- d. The X-ray Tube

Ans. D

29. Which of the following components reduces dose and promotes skin-sparing by removing low energy photons from the beam, making the beam harder?

- a. The beam shaping filter
- b. The x-ray tube
- c. The Array Processor
- d. The CT Computer

Ans. A

30. Which of the following components converts raw data into image data through the application of various algorithms?

- a. The ADC
- b. The CT Computer
- c. The DAC
- d. The Detector System

Ans. B