

Online Examinations (Even Sem/Part-I/Part-II Examinations 2020 - 2021)

Course Name - --Physics of Newer Imaging Modalities

Course Code - BMRIT401

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Answer all the questions. Each question carry one mark.

9. 1. CT scan was invented by?

Mark only one oval.

- Godfrey Hounsfield
- Wilhelm Cornard Roentgen
- Alan Cormack
- None of these

10. 2. Image reconstruction was evaluated Mathematically by?

Mark only one oval.

- Wilhelm Cornard Roentgen
- Alan Cormack
- Godfrey Hounsfield
- None of these

11. 3. Contrast resolution in Computed Tomography is ?

Mark only one oval.

- Less than conventional film
- Better than conventional films
- Same as conventional films
- None of these

12. 4. CT number of air is?

Mark only one oval.

- (+)1000
- (-)1000
- (+)100
- (-)100

13. 5. CT number of water is?

Mark only one oval.

- (+)1
- (-)1
- 0
- (+)200

14. 6. Coefficient of Water is?

Mark only one oval.

- 0.18
- 0.36
- 0
- 0.19

15. 7. Coefficient of Bone is?

Mark only one oval.

- 0.38
- 0
- 0.19
- 0.91

16. 8. Coefficient of Air?

Mark only one oval.

0.19

0.38

0

0.83

17. 9. 1st generation CT Scan uses?

Mark only one oval.

Broad fan beam

Multiple X-ray beam

Narrow Fan Beam

Pencil beam of X-rays

18. 10. 2nd generation CT Scan uses?

Mark only one oval.

Multiple X-ray beam

Narrow Fan Beam

Broad fan beam

Pencil beam of X-rays

19. 11. 3rd & 4th generation CT Scan uses?

Mark only one oval.

- Multiple X-ray beam
- Narrow Fan Beam
- Pencil beam of X-rays
- Broad fan beam

20. 12. 5th generation CT Scan uses?

Mark only one oval.

- Multiple X-ray beam
- Broad fan beam
- Narrow Fan Beam
- Pencil beam of X-rays

21. 13. In CT Scan the 1st generation is?

Mark only one oval.

- Rotate-rotate type
- Translate-rotate type
- Stationary-rotate type
- None of these

22. 14. In CT Scan the 2nd generation is?

Mark only one oval.

- Rotate-rotate type
- Stationary-rotate type
- Translate-rotate type
- None of these

23. 15. In CT Scan the 3rd generation is?

Mark only one oval.

- Rotate-rotate type
- Translate-rotate type
- Stationary-rotate type
- None of these

24. 16. In CT Scan the 4th generation is?

Mark only one oval.

- Rotate-rotate type
- Stationary-rotate type
- Translate-rotate type
- None of these

25. 17. Pitch is?

Mark only one oval.

- Couch movement each 360 degree added by slice thickness
- Couch movement each 360 degree Multiplied by slice thickness
- Couch movement each 360 degree divided by slice thickness
- None of these

26. 18. The 1st CT scan was developed by?

Mark only one oval.

- Purcell & Bolch
- Godfrey Hounsfield
- WC Roentgen
- Paul Luterberg

27. 19. Number of detectors used in 1st generation is?

Mark only one oval.

- 2
- 64
- 16
- 126

28. 20. 1st CT Scan was designed to evaluate ?

Mark only one oval.

- Stomach
- Angiography
- Heart
- Brain

29. 21. What is EMI in EMI CT scanner?

Mark only one oval.

- Electromagnetic Induction
- Electric motion imaging
- Easy magnetic imaging
- Electrical Musical instrumentation

30. 22. Full form of NMR?

Mark only one oval.

- Neutral Magnetic Resonance
- Nuclear Magnetic Resonance
- Nuclear Musical Resonance
- Nuclear Magnetic Resources

31. 23. To establish a new transverse magnetization RF pulse causes longitudinal magnetization to.....

Mark only one oval.

- Remain change
- Increase
- Decrease
- None of these

32. 24. When T1 is approx..... of original longitudinal magnetization is reached.

Mark only one oval.

- 37%
- 63%
- 5%
- 1%

33. 25. When T2 is approx..... of original longitudinal magnetization is reached.

Mark only one oval.

- 37%
- 63%
- 5%
- 1%

34. 26. MRIs are made with

Mark only one oval.

- Ultrasonic pulse
- RF Pulse
- High energy X-rays
- Gamma pulse

35. 27. Who described NMR?

Mark only one oval.

- WC Roentgen & Felix Bloch
- Edward Purcell & Cormack
- Cormack & Hounsfield
- Felix Bloch & Edward Purcell

36. 28. Why choose MRI?

Mark only one oval.

- Because it provides excellent soft tissue contrast resolution
- To demonstrate dense bone details
- Because of higher special resolution
- There is no chance of claustrophobia

37. 29. MRI drawback?

Mark only one oval.

- Limited special resolution
- Takes longer imaging time
- Inability to demonstrate dense bone detail
- All of these

38. 30. Atomic nuclei are made up of?

Mark only one oval.

- Proton
- Neutron
- both Proton & Neutron
- Electron

39. 31. 1 gauss =tesla

Mark only one oval.

- 5×10^3 T
- 10^{-4} T
- 10^{-3} T
- None of these

40. 32. Contrast media used for MRI?

Mark only one oval.

- Iodinated CM
- Barium Sulphate CM
- Gadolinium
- All of these

41. 33. Contra Indicated metallic implant for MRI?

Mark only one oval.

- Titanium plated
- Platinum plated
- Iron
- Copper

42. 34. MRI room shielding also called as ?

Mark only one oval.

- Faraday's Cage
- Bird's Cage
- Newton's Cage
- Einstein's Cage

43. 35. The range of ultrasound used in medical diagnosis ?

Mark only one oval.

- 20kHz
- 40kHz
- 60kHz
- 1MHz-20MHz

44. 36. These days , piezoelectric crystal material is

Mark only one oval.

- Phosphor
- Bismuth Zirconate
- Lead Zirconate Titanate
- All of these

45. 37. First application of ultrasound in medical diagnostics was introduced by?

Mark only one oval.

- Dussik
- Langevin
- Solokov
- Lord Raleigh

46. 38. Which of the following medical imaging modality other than ultrasound does not use any form of radiation?

Mark only one oval.

- PET Scan
- SPECT
- MRI
- CT Scan

47. 39. For which of these areas can the ultrasound be taken for an infant but not for an adult?

Mark only one oval.

- Cranium
- chest
- Arm
- Legs

48. 40. How is a medium characterized?

Mark only one oval.

- By its thickness
- By its acoustic impedance
- By its water content
- By its density

49. 41. Image receptor in CR is ?

Mark only one oval.

- PMT
- Silicon TFT
- Amorphous
- Photostimulable phosphor

50. 42. Fading of latent image on photostimulable phosphor occur by ?

Mark only one oval.

- Fluorescence
- Photostimulable luminescence
- Phosphorescence
- Light exposure

51. 43. All of these increases spatial resolution in CR except ?

Mark only one oval.

- Small plate
- Larger pixel size
- Thinner phosphor plate
- Reduced phosphorescence lag

52. 44. Contrast of digital image depends upon all except ?

Mark only one oval.

- Number of bits per pixel
- Gain
- Contrast enhancement
- Pixel size

53. 45. First DR system appeared in ?

Mark only one oval.

- 1983
- 1975
- 1990
- 2000

54. 46. DICOM is

Mark only one oval.

- Digital Imaging and computation in Medicine
- Digital Imaging and communication in Mammography
- Diagnostic Imaging and communication in Musculoskeletal Imaging
- Diagnostic Imaging and communication in Medicine

55. 47. PACS

Mark only one oval.

- Pocket Adopter Computer System
- Picture Archiving and Computer System
- Picture Archiving and Communication System
- Printing and Copying system

56. 48. Interaction between the PACS and the imaging modalities are made possible by the development of the

Mark only one oval.

- RIS
- HIS
- DICOM
- HL-7

57. 49. What are the main components of PACS?

Mark only one oval.

- Digitization
- Memory
- Network
- All of these

58. 50. Wide Area Network (WAN) devices are connected by

Mark only one oval.

- Cable
- Router
- Telecommunication Devices
- Ring

59. 51. First DR system appeared in the year ?

Mark only one oval.

- 1990
- 1983
- 2000
- 1975

60. 52. First DR system was of ?

Mark only one oval.

- CCD type
- FPD type
- Photon counting type
- PSP type

61. 53. PET-MRI has advantages

Mark only one oval.

- Almost no radiation
- Specific molecular, enzymes and gene suppression
- High sensitivity
- All of these

62. 54. The benefit of the PACS include

Mark only one oval.

- Security of the image storage
- Elimination of the film stores
- Better availability of the images
- All of these

63. 55. Full form of PET ?

Mark only one oval.

- Positron Emission Tomography
- Positron Electric Tomography
- Proton emission Tomography
- Proton Electric Tomography

64. 56. Full form of SPECT ?

Mark only one oval.

- Sign Positron Emission Computed Tomography
- Single Positron Erosion Computed Tomography
- Single Positron Emission Computed Tomography
- Simple Proton Emission Computed Tomography

65. 57. Iodine has a half life of

Mark only one oval.

- 6 hr
- 8.06 days
- 128 days
- 23 hr

66. 58. PET scanners detect

Mark only one oval.

- Positron of the same energy in coincidence.
- Positrons and electrons in coincidence.
- Photons of different energies in coincidence.
- Annihilation photons in coincidence.

67. 59. Gamma camera was developed in which year?

Mark only one oval.

1950

1914

1976

1984

68. 60. Radiotherapy is a branch of medicine in which

Mark only one oval.

Non-ionizing radiations are used to treat malignant diseases.

Ionizing radiations are used to treat malignant disease.

Non-sealed radionuclides are used.

None of these

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