WRITTEN TEST FOR MFCP OF TECHNICAL ASSISTANT(IS&IR) A TO B

1. X-Ray are produced by
    a. Acceleration of electron in vacuum
    b. Deceleration of electron by target
    c. Heating of the tungsten filament
    d. All the above
2. Which of the following is not the reason for making vacuum inside the X-ray tube
    a. Eliminate the chance of ionization
    b. Increase the speed of cathode stream electrons
    c. Proper control over tube current
    d. Improve anode cooling
3. To obtain optimal density in the radiograph;
    a. use proper kVp
    b. Use proper mAs
    c. Use proper grid
    d. Do proper positioning
4. Photoelectric effect is also known as
    a. Edison effect
    b. Hertz Effect
    c. Absorption effect
    d. Augur effect
5. Which standard is used for handling, storing, printing, and transmitting information in medical imaging
    a. DICOM
    b. HL7
    c. IHE
    d. SNOMED
6. Which standard developed is used for the transfer of textual data between different information systems in healthcare.
    a. DICOM
    b. HL7
    c. IHE
    d. SNOMED
7. Which types of diagnostic grade monitors is recommended by the FDA for Computed Tomography
    a. 1 Mega Pixel
    b. 2 Mega Pixel
    c. 3 Mega Pixel
    d. 5 Mega Pixel
8. What type of storage is used to keep the most recently acquired images to ensure fast access?
    a. Near line storage
    b. Online storage
    c. Archive storage
    d. Offline storage

9. Which post processing technique reconstructs the axial images into coronal, sagittal and oblique anatomical planes to create a volume of interest 3D image?
    a. Multiimage Reconstruction (MPR)
    b. Multiplanar Reconstruction (MPR)
    c. Multiframe Reconstruction (MPR)
    d. Multiregion Reconstruction (MPR)
10. Compton process is an example of .....
    a. Inelastic scattering
    b. Elastic scattering
    c. Coherent scattering
    d. Thomson's scattering
11. Bremsstrahlung radiation
    a. Is emitted when an incoming electron interacts with a bound electron
    b. Is responsible for the line spectrum of X-rays emitted from the target
    c. Has a minimum photon energy which varies with the kVp set
    d. Has a maximum photon energy in keV numerically equal to the applied kVp
12. In some X-ray tube there are two filaments
    a. To reduce space charge effect
    b. To ensure saturation current
    c. To provide two focal spot
    d. To inhibit inverse current
13. The typical ratio of scattered radiation to the amount of primary radiation for posteroanterior radiograph is
    a. 4:1
    b. 2:1
    c. 1:1
    d. 1:4
14. The recommended size for the gantry room of a CT scan is
    a. 25 square meter
    b. 50 square meter
    c. 15 square meter
    d. 18 square meter
15. In a tungsten target the characteristic X-rays useful for making radiograph is from
    a. K shell
    b. L shell
    c. M shell
    d. N shell
16. Disadvantage of 3 phase compared to single phase is
    a. Longer minimum exposure time
    b. Higher electrical operating cost
    c. Lower radiation output
    d. Softer radiation

17. A moving grid has typically
    a. 10 line/mm
    b. 15 line/mm
    c. 5 lines/mm
    d. Any number of lines/mm
18. The characteristic curve is obtained by plotting log of relative exposure to
    a. Speed
    b. Sensitivity
    c. Optical density
    d. Log of optical density
19. MRI contrast agent gadolinium
    a. Shortens T1 relaxation time
    b. Shortens T2 relaxation time
    c. Increases T1 relaxation time
    d. Increases T2 relaxation time
20. .....is the MR imaging technique for the reconstruction of fat and water images based on the Chemical shift between fat and water.
    a. Dixon Technique
    b. Faraday technique
    c. Eddy Technique
    d. Magic Technique
21. .....is the mathematical space for storage of the measured raw data before the MR image is reconstructed by applying 2D or 3D Fourier transform.
    a. F space
    b. MR space
    c. K space
    d. D space
22. Which of the following will not affect subject contrast?
    a. Patient thickness
    b. KVp setting
    c. Atomic number
    d. Processor temperature
23. Which of the following components of an image intensifier converts light in to electrons
    a. Anode
    b. Filament
    c. Input fluorescent screen
    d. Photo cathode
24. Which of the following radiographic technique should result in the greatest latitude?
    a. High KVp, screen film, high grid ratio
    b. Low KVp, screen film low grid ratio
    c. Low KVp, screen film, high grid ratio
    d. High KVp, direct exposure, high grid ratio

25. The main component of radiographic noise is
    a. Structure mottle
    b. Quantum mottle
    c. Random mottle
    d. Graininess
26. The large filament is used during radiography
    a. When the heat load is high & fine detail is necessary
    b. When the heat load is high & fine detail is unnecessary
    c. When heat load is low & fine detail is necessary
    d. When heat load is low & fine detail is unnecessary
27. The addition of thorium to tungsten filament
    a. Increases filament life
    b. Decreases the space charge effect
    c. Reduces the saturation current
    d. Increases efficiency of thermionic emission
28. Increasing the magnetic field in MRI?
    a. Produces less susceptibility artifacts
    b. Reduces the risk of tissue heating
    c. Increase the signal to noise
    d. Reduces the danger from metallic projectiles.
29. What are magnetophosphenes?
    a. Magnetically active bacteria
    b. Substances which glow in a magnetic field
    c. The sensation of flashes of light
    d. Protons which do not respond to phase encoding
30. In MR spectroscopy, the TE for better visualization of glutamate & glutamine
    a. 35 (short echo)
    b. 144 (intermediate echo)
    c. 270 (Long echo)
    d. 890 (very long echo)
31. Permeability imaging in CT & MRI is useful for the management of:
    a. Alzheimer's disease
    b. Brain tumor
    c. Parkinson's disease
    d. Epilepsy
32. Newtons Inverse Square Law is useful in radiography because it indicates how the radiation intensity is affected by
    a. Radioactive decay
    b. Distance from the source
    c. The size of the source
    d. None of the above
33. The usual dose of Gadolinium DTPA is
    a. 0.1 mmol / kg
    b. 0.01 mmol /kg
    c. 0.05 mmol / kg
    d. 1 mmol / kg

34. Diffusion- perfusion mismatch calculation is done
    a. To detect the tumor cellularity in brain tumor
    b. In all patients with stroke
    c. Useful only in acute stroke management
    d. As a part of acute CT protocol
35. 3D FLAIR sequence in epilepsy protocol is a good sequence to detect
    a. Mesial temporal sclerosis
    b. Focal calcification
    c. Focal cortical dysplasia
    d. Vascular malformation
36. Patient is presenting with pulsatile tinnitus for CT scan. Which of the statement is false ?
    a. CT bone window is useful
    b. Contrast CT may detect contrast enhancing lesions.
    c. CT angiogram can be useful in few patients.
    d. The area of interest is near the paranasal sinuses
37. CT permeability study in stroke is done to evaluate
    a. the total volume of infract which can salvaged by acute stroke thrombolysis
    b. Predict areas of hemorrhagic transformation in acute stroke.
    c. To look for sinus thrombosis as a cause for stroke
    d. The possibility of spontaneous recovery.
38. For better fiber tractography in Diffusion tensor imaging which is more important
    a. Acquisitions must be contiguous in 3D, with no gaps between
    b. Using large non- isotropic voxel size for better SNR
    c. Using 6 directions of diffusion encoding
    d. By decreasing the acquisition time to prevent patient movement.
39. All the following software are used for functional MRI data processing except
    a. Statistical parametric mapping
    b. Presentation
    c. AFNI
    d. Brain Voyager
40. Which of the following sequences can be used to estimate the iron deposition in the brain
    a. Multi shot Echo-planar diffusion imaging
    b. Susceptibility weighted imaging
    c. Single shot EPI diffusion imaging
    d. MR spectroscopy
41. The cochlea is located within the?
    a. Frontal bone
    b. Occipital bone
    c. Temporal bone
    d. Sphenoid bone
42. The superior mesenteric artery arises commonly from the?
    a. Coeliac axis
    b. Hepatic artery
    c. Abdominal aorta
    d. Splenic artery
43. Which of the following catheter is not a reverse curve catheter?
    a. Simmonds Catheter
    b. Roberts Catheter
    c. Shepherd's Hook Catheter
    d. Berenstein Catheter

44. Which of the following is not true for a balloon expandable stent?
    a. Foreshortening can occur depending on the vessel diameter
    b. Accurate deployment is not possible
    c. Can deform when subjected to external pressure
    d. They are generally made of stainless steel material
45. Following drugs can be used in acute thromboembolic complications during interventional procedures except:
    a. Tirofiban
    b. Abciximab
    c. Tissue Plasminogen Activator
    d. Prasugrel
46. Balloon tipped guide catheters are used in which interventional procedure?
    a. Aneurysm coiling
    b. Cavernous sinus coiling
    c. Mechanical Thrombectomy
    d. Dural fistula embolisation
47. Inferior petrous sinus sampling is done for:
    a. Cavernous sinus dural fistula
    b. Brain tumors
    c. Pituitary adenomas
    d. Cerebral venous sinus thrombosis
48. What is true about flow diverters?
    a. They have very porosity
    b. They have high metal coverage ratio
    c. They have very small pore size
    d. Metal wire diameter is very small
49. All are true about PVA particles used for embolisation except:
    a. They have varying particle size
    b. They can aggregate and cause clumps
    c. They are more compressible
    d. Particles less than 150 microns can cause severe ischemia
50. Which anatomical landmark is important while placing IVC filter
    a. Upper most renal vein
    b. Lowermost renal vein
    c. IVC bifurcation
    d. IVC-Hepatic junction

MFCP OF TECH ASST (IS& IR) (13/03/2018)

ANSWER KEY

1	b	21	c	41	c
2	d	22	d	42	c
3	b	23	d	43	d
4	b	24	c	44	b
5	a	25	b	45	d
6	b	26	b	46	c
7	b	27	a	47	c
8	b	28	c	48	a
9	b	29	c	49	c
10	a	30	a	50	b
11	c	31	b		
12	c	32	b		
13	a	33	a		
14	a	34	c		
15	a	35	c		
16	b	36	d		
17	c	37	b		
18	c	38	a		
19	a	39	b		
20	a	40	b		