

## **BRAINWARE UNIVERSITY**

## Term End Examination 2021 - 22

## Programme – Bachelor of Science in Medical Radiology & Imaging Technology Course Name – Quality Control in Radiology and Radiation Safety Course Code - BMRIT404

(Semester IV)

Time allotted: 1 Hrs.15 Min. Full Marks: 60 [The figure in the margin indicates full marks.] Group-A (Multiple Choice Type Question) 1 x 60=60 Choose the correct alternative from the following: (1) The maximum field of view which can be obtained with a specific radiographic system is generally limited by the a) Focal Spot Size b) Anode size d) Heel effect c) Anode angle (2) The maximum mA which can be used for a single radiographic exposure is related to the a) KV b) Exposure time d) Anode rotation speed c) Focal spot size (3) The primary x-ray beam penetration through a patient can be increased by increasing the a) KV b) mAs c) Filtration d) Beam area (4) Actual focal spot size of portable X-ray tube is a) 0.5 mm b) 1 mm c) 1.5 mm d) 2mm (5) Heel effect increases with a) Short SID b) long SID c) none d) All (6) Frequency of cheaking kVP is a) Yearly b) Monthly

d) Once in 2 year

b) Monthly

c) Once in 3 year

a) Yearly

(7) Frequency of cheaking mAs is

c) Once in 3 year	d) Once in 2 year
(8) Frequency of cheaking filtration is	
a) Yearly	b) Once in 3 months
c) Once in 3 year	d) Once in 2 year
(9) Frequency of cheaking central beam alignment is	
a) Yearly	b) Once in 3 months
c) Once in 3 year	d) Once in 2 months
(10) Frequency of cheaking timer is	
a) Yearly	b) Once in 3 months
c) Once in 3 year	d) Once in 2 months
(11) Frequency of cheaking focal spot size is	
a) Yearly	b) Once in 3 months
c) Once in 3 year	d) Once in 2 months
(12) Focal spot test tool with non-screen film cassette	is used for the QA of
a) Focal spot size	b) FFD
c) FID	d) FOV
(13) In Radiography QC, which of the following mean come out on the area where the cross-hairs meet?	
a) Beam perpendicularity	b) Field congruence
c) None	d) All
(14) In radiographic QC which of the following means collimating will correspond to what will happen?	
a) Field congruence	b) Beam perpendicularity
c) None	d) All
(15) Which of the following is A radiographic QC pro	cedure that is usually done once a year?
a) Retake analysis	b) Visual inspection of cleanliness of imaging systems
c) Cassette and screen cleaning	d) Safelight test
(16) What is the device used for generating beams of v paths?	waves or particles that have parallel
a) USG machine	b) FMRI
c) ECG	d) Collimator
(17) The tolerance limit of tube leakage radiation at 1	m from the focus is
a) >110 mR / hour	b) <115 mR/hour
c) >115 mR/hour	d) None
(18) CT phantom is made up of	
a) Metal	b) Water
c) Water equivalent material	d) All
(19) MRI phantom is made up of	
a) Metal	b) Water
c) Water equivalent material	d) All
(20) As mAs increases	
a) Exposure time decreases	h) Exposure time will not change

c) Exposure time increases	d) None
(21) What does CR mean?	
a) Computed Tomography	b) Computerized Radiography
c) Computer Radiography	d) Computed Radiography
(22) An 8:1 grid is replaced with a 12:1 grid. This will	have the effect of:
a) Increasing contrast and patient radiation dose.	b) Increasing contrast with no change in patient radiation dose
<ul> <li>c) Increasing contrast and reducing patient radiation dose.</li> </ul>	d) Decreasing contrast and patient radiation dose.
(23) Scintilation detector is also called as	
a) Gas field detector	b) Solid state detector
c) Ionising chember	d) None
(24) Result of retake examination is	
a) Radiation dose increase	b) Cost increase
c) All	d) None
(25) What does the following acronym represent? AL.	ARA
a) As Low As Reasonably Achievable	b) As Long As Radiation Absconds
c) Achievable Low Radiation Absorption	d) None
(26) Effective dose is define as	
a) HT	b) Sv
c) mR	d) Rad
(27) Sivert is the unit of	
a) Effective dose	b) Equivalent dose
c) Absorbed dose	d) None
(28) Which of the following nuclear reactions is occur	ring on the sun?
a) Nuclear Fission	b) Nuclear Fusion
c) All	d) None
(29) The unit that compares the biological effectivenes the:	ss of the different types of radiation is
a) REM	b) RAD
c) Roentgen	d) QF
(30) The abbreviation RAD stands for	
a) Radiation Absorbed Dose	b) Radical Man
c) Outrageousness	d) Roentgen Absorbed Dose
(31) The physical effects of radiation on the body of a called:	n individual receiving the radiation are
a) Somatic effects	b) Latent effects.
c) Genetic effects.	d) Radiosensitive effects.
(32) Materials used in shielding radiation are most effective.	ective when they
a) Have a small number of electrons in their atoms	b) Are dense materials.
c) Shield half of the radiation.	d) Are light weight and portable
(33) When a body tissue cell is damaged by radiation	

a) The cell may lose its ability to reproduce	b) The cell may die.
c) Damage is caused by knocking an electron out of the orbit of its parent atom.	d) All
(34) The process that results in the removal of orbital formation of ion pairs is called:	electrons from atoms resulting in the
a) Excitation	b) Radioactivity
c) Decay	d) Pair production
(35) Radiation is defined as	
a) Ionized Beta Alpha particles	b) Energy in transit, either as particles or electromagnetic waves
<ul> <li>c) Heat and light emitting only from gamma sources like uranium or the sun</li> </ul>	d) Energy that does not burn or ionize
(36) Which of the following are examples of "non-ion	izing" radiation?
a) Near UV and radio waves	b) Visible light and Microwaves
c) Infrared	d) All
(37) Which of the following are two types of electrom radiography?	agnetic radiation used for industrial
a) X-rays and Microwaves	b) Gamma and X-rays
c) Gamma and Radio waves	d) Infrared and UV
(38) What is the difference between X-rays and gamm	na rays?
<ul> <li>a) X-rays are produced extranuclearly whereas gamma rays are produced in nuclear decays.</li> </ul>	b) X-ray have higher energies than gamma rays
c) gamma rays are produced by bremsstrahlung	d) X-ray and gamma rays interact with matter differently
(39) Cell are mainly clasified into catego	ries?
a) 3	b) 2
c) 4	d) 5
(40) Reproductive cell contains only Chron	mosome?
a) 22	b) 23
c) 24	d) 16
(41) All somatic cell in human body contain Ch	romosomes?
a) 44	b) 43
c) 46	d) 45
(42) Full form of LET	
a) Linear Energy Transfer	b) Low Energy Transfer
c) None	d) All
(43) Somatic effects further classified by categor	ries?
a) 2	b) 3
c) 4	d) 5
(44) Non stochastic effects also called	
a) Genetic effect	b) Stochastic effect
c) Deterministic effect	d) Somatic effect
(45) Threshold does not exist in	

a) Genetic effect	b) Stochastic effect	
c) Deterministic effect	d) None	
(46) Threshold exist in		
a) Determinestic effect	b) Stochastic effect	
c) Genetic effects.	d) None	
(47) Atomic number of Pb is		
a) 74	b) 64	
c) 84	d) 82	
(48) Unit of exposure		
a) Roentgen	b) Rad	
c) Sv	d) mRm	
(49) Unit of absorbed dose		
a) RAD	b) Sv	
c) Roentgen	d) All	
(50) Unit of equivalent dose		
a) mSv	b) mRem	
c) mR	d) None	
(51) 1 Sv =		
a) 100 mSv	b) 1000mSv	
c) 1 mRem	d) None	
(52) A scintillation detector consists of		
a) 4 parts	b) 3 parts	
c) 2 parts	d) 5 parts	
(53) TLD is a		
a) Area monitoring device	b) pocket dosimetor	
c) None	d) Both	
(54) Number of plate in TLD		
a) 2	b) 3	
c) 4	d) 5	
(55) NaI is used in		
a) Gas field detector	b) Scintillation detector	
c) Pocket dosimetor	d) None	
(56) Tissue weighting factor Lung according to ICRP 2007		
a) 0.12	b) 0.05	
c) 1	d) 0.1	
(57) Tissue weighting factor Gonad according to ICRP 2007		
a) 0.08	b) 0.1	
c) 0.09	d) 0.1	
(58) Tissue weighting factor of skin according to ICRP 2007		
a) 0.01	b) 0.1	
c) 0.11	d) 0.12	
(59) Attenuation is		

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- a) Penetration
- c) Scattering
- (60) The radiation weighting factor depends
  - a) only on the energy of the radiation
  - c) Both on the energy and the particle type of the radiation
- b) Absorption
- d) Asorption+ Scattering
- b) Only on the particle type of the radiation
- d) None