



## 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
c) Anode angle	d) Heel effect
- (2) The maximum mA which can be used for a single radiographic exposure is related to the
 

a) KV	b) Exposure time
c) Focal spot size	d) Anode rotation speed
- (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 checking kVP is
 

a) Yearly	b) Monthly
c) Once in 3 year	d) Once in 2 year
- (7) Frequency of checking mAs is
 

a) Yearly	b) Monthly
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- c) Once in 3 year  
d) Once in 2 year
- (8) Frequency of checking filtration is  
a) Yearly  
b) Once in 3 months  
c) Once in 3 year  
d) Once in 2 year
- (9) Frequency of checking central beam alignment is  
a) Yearly  
b) Once in 3 months  
c) Once in 3 year  
d) Once in 2 months
- (10) Frequency of checking timer is  
a) Yearly  
b) Once in 3 months  
c) Once in 3 year  
d) Once in 2 months
- (11) Frequency of checking 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 means that the X-ray's central ray will actually 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 that the light field seen when 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 procedure 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 waves or particles that have parallel paths?  
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  
b) 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
- c) Increasing contrast and reducing patient radiation dose.
- d) Decreasing contrast and patient radiation dose.
- (23) Scintillation detector is also called as
- a) Gas field detector
- b) Solid state detector
- c) Ionising chamber
- 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? ALARA
- 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 occurring on the sun?
- a) Nuclear Fission
- b) Nuclear Fusion
- c) All
- d) None
- (29) The unit that compares the biological effectiveness of the different types of radiation is the:
- 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 an individual receiving the radiation are called:
- a) Somatic effects
- b) Latent effects.
- c) Genetic effects.
- d) Radiosensitive effects.
- (32) Materials used in shielding radiation are most effective 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) Genetic effect  
c) Deterministic effect
- (46) Threshold exist in  
a) Determinestic effect  
c) Genetic effects.
- (47) Atomic number of Pb is  
a) 74  
c) 84
- (48) Unit of exposure  
a) Roentgen  
c) Sv
- (49) Unit of absorbed dose  
a) RAD  
c) Roentgen
- (50) Unit of equivalent dose  
a) mSv  
c) mR
- (51) 1 Sv =  
a) 100 mSv  
c) 1 mRem
- (52) A scintillation detector consists of  
a) 4 parts  
c) 2 parts
- (53) TLD is a  
a) Area monitoring device  
c) None
- (54) Number of plate in TLD  
a) 2  
c) 4
- (55) NaI is used in  
a) Gas field detector  
c) Pocket dosimeter
- (56) Tissue weighting factor Lung according to ICRP 2007  
a) 0.12  
c) 1
- (57) Tissue weighting factor Gonad according to ICRP 2007  
a) 0.08  
c) 0.09
- (58) Tissue weighting factor of skin according to ICRP 2007  
a) 0.01  
c) 0.11
- (59) Attenuation is
- b) Stochastic effect  
d) None
- b) Stochastic effect  
d) None
- b) 64  
d) 82
- b) Rad  
d) mRm
- b) Sv  
d) All
- b) mRem  
d) None
- b) 1000mSv  
d) None
- b) 3 parts  
d) 5 parts
- b) pocket dosimeter  
d) Both
- b) 3  
d) 5
- b) Scintillation detector  
d) None
- b) 0.05  
d) 0.1
- b) 0.1  
d) 0.1
- b) 0.1  
d) 0.12

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) Absorption+ Scattering

b) Only on the particle type of the radiation

d) None