



BRAINWARE UNIVERSITY

Term End Examination 2021 - 22

Programme – Bachelor of Science in Medical Radiology & Imaging Technology

Course Name – Quality Assurance & Radiation Safety (AERB Guidelines) in Diagnostic Radiology

**Course Code - BMRIT601
(Semester VI)**

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) 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
- (2) 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
- (3) 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
- (4) MRI phantom is made up of
 - a) Metal
 - b) Water
 - c) Water equivalent material
 - d) All
- (5) As mAs increases
 - a) Exposure time decreases
 - b) Exposure time will not change
 - c) Exposure time increases
 - d) None
- (6) The Molybdenum target allows production of low KVp radiation at
 - a) 60-90 KVp
 - b) 26-40 KVp
 - c) 10-20 KVp
 - d) None
- (7) What does CR mean?
 - a) Computed Tomography
 - b) Computerized Radiography
 - c) Computer Radiography
 - d) Computed Radiography
- (8) Antiscattered grid is an
 - a) QA tool
 - b) Measurement tool

- c) Both
d) All
- (9) CT scan couch is made up of
a) Carbon
b) Carbon fiber
c) Aluminium
d) Plastic
- (10) Scintillation detector is also called as
a) Gas field detector
b) Solid state detector
c) Ionising chamber
d) None
- (11) Result of retake examination is
a) Radiation dose increase
b) Cost increase
c) All
d) None
- (12) 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
- (13) Full form of RBE
a) Relative Biological Effectiveness
b) Relative Bio-hazards Effectiveness
c) None
d) All
- (14) Effective dose is define as
a) HT
b) Sv
c) mR
d) Rad
- (15) Sivert is the unit of
a) Effective dose
b) Equivalent dose
c) Absorbed dose
d) None
- (16) HVL stand for:
a) Half Value Layer
b) Half Value Luminescence
c) Half Vetted Layer
d) High Value Layer
- (17) 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
- (18) 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
- (19) The primary x-ray beam penetration through a patient can be increased by increasing the
a) KV
b) mAs
c) Filtration
d) Beam area
- (20) Heel effect increases with
a) Short SID
b) long SID
c) none
d) All
- (21) Frequency of cheaking kVP is
a) Yearly
b) Monthly
c) Once in 3 year
d) Once in 2 year
- (22) Frequency of cheaking filtration is
a) Yearly
b) Once in 3 months
c) Once in 3 year
d) Once in 2 year
- (23) Frequency of cheaking timer is

- a) Yearly
c) Once in 3 year
- b) Once in 3 months
d) Once in 2 months
- (24) Collimator test tool with screen film cassette is used as a QA tool for
- a) Congruence of radiation and optical field
c) kV
- b) Focal spot size
d) mAs
- (25) Focal spot test tool with non-screen film cassette is used for the QA of
- a) Focal spot size
c) FID
- b) FFD
d) FOV
- (26) In radiographic QC which of the following means that the light field seen when collimating will correspond to what will happen?
- a) Field congruence
c) None
- b) Beam perpendicularity
d) All
- (27) Which of the following helps in reducing internal radiation exposure
- a) Use proper protective equipment
c) Good hygiene
- b) Control of contamination
d) All
- (28) Which of the following help in reducing internal radiation exposure?
- a) Use proper protective equipment
c) Good hygiene
- b) Control of contamination
d) All
- (29) ALARA stands for
- a) Accepted lowest achievable radiation Alarms
c) Allowable levels of accepted radiation
- b) As long as radiation is allowable
d) As low as reasonably achievable
- (30) Which of the following is not one of the three major principles assisting the ALARA concept?
- a) Maintenance
c) Distance
- b) Shielding
d) Time
- (31) Which of the following machines is often placed together with an X-Ray machine?
- a) Endoscopy
c) Fluoroscopy
- b) Ultrasound
d) C-Arm
- (32) The X-Ray is recorded on a plate coated with ----
- a) Gold Halide
c) Copper Halide
- b) Silver Halide
d) Iron Halide
- (33) The maximum field of view which can be obtained with a specific radiographic system is generally limited by the --
- a) Focal spot size
c) Anode angle
- b) Anode size
d) Focal length
- (34) What is the tolerance level for the QA test of KV in X-Ray unit
- a) ± 5
c) ± 2
- b) ± 12
d) ± 1
- (35) What is the tolerance level for the QA test of exposure timer?
- a) $\pm 5\%$
c) ± 5
- b) $\pm 10\%$
d) ± 10
- (36) FFD used to check linearity of mA loading station?
- a) FFD 100 cm
c) FFD 25 cm
- b) FFD 80 cm
d) FFD 150 cm
- (37) Material used for total filtration check for X-Ray unit
- a) Aluminum
c) None
- b) Molybdenum
d) Both

- a) Stationary grid
b) Moving grid
c) Both
d) None of these
- (53) The use of high frequency grids results in _____ patient radiation dose.
a) Higher
b) Lower
c) Half
d) No effect
- (54) As the bucky factor increases, patient dose _____ proportionately.
a) Decreases
b) Increases
c) Halves
d) No effect
- (55) High-ratio grids are used for _____ examinations.
a) Low kVp
b) High kVp
c) Both
d) None of these
- (56) The patient dose during fluoroscopy as compare to radiography is
a) Much high
b) Low
c) Equal
d) None of these
- (57) Illumination level during fluoroscopy is measured in
a) Luminance per square meter or lux
b) Ampere
c) Watt
d) None of these
- (58) The component of X-ray image intensifier are
a) Input phosphor, photo cathode and accelerating anode
b) Electrostatic focusing lines
c) Output phosphor
d) All of these
- (59) Modern X-ray tube have
a) 3 conductor H.T cable
b) 1 Conductor H.T cable
c) 5 conductor H.T cable
d) 2 conductor H.T cable
- (60) Gas filled X-ray tube have
a) 2 Conductor H.T cable
b) 1 Conductor H.T cable
c) 3 conductor H.T cable
d) 5 conductor H.T cable