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## **BRAINWARE UNIVERSITY**

Term End Examination 2023
Programme – B.Sc.(MRIT)-2021
Course Name – Quality Control in Radiology and Radiation Safety
Course Code - BMRIT404
( Semester IV )

Full Marks : 60 Time : 2:30 Hours
[The figure in the margin indicates full marks. Candidates are required to give their answers in their

own words as far as practicable.]

## Group-A

(Multiple Choice Type Question)

1 x 15=15

1.	Choose the correct alternative from the following	ı:	
(i)	Describe the purpose of the weekly quality control test for digital radiography systems		
(ii)		b) To monitor patient dose d) To perform routine maintenance ontrol test for mammography units	
(iii)		b) Tube current and voltage d) Exposure time and dose vith non-screen film cassette is used	
(iv)	<ul><li>a) Focal spot size</li><li>c) FID</li><li>Select the material which is use to manufacture</li></ul>	b) FFD d) FOV CT phantom	
	<ul><li>a) Metal</li><li>c) Water equivalent material</li><li>Identify the recommended monthly limit to the</li></ul>	b) Water d) All	
	<ul><li>a) 0.05 mSv</li><li>c) 0.5 mSv</li><li>Select the correct meaning of ALARA.</li></ul>	b) 0.1 mSv d) None	
	a) Accepted Lowest Achievable Radiation Alarms	b) Allowable Levels of Accepted Radiation	
(vii)	c) As Long as Radiation is Allowable Name the essential components of a quality ass	d) As Low As Reasonably Achievelle	
	<ul><li>a) Quality control testing</li><li>c) Quality assurance review</li><li>Select the correct answer, Somatic effects further</li></ul>	b) Imaging protocol standardization	
	a) 2 c) 4	b) 3 d) 5	

(ix	(ix) Select the correct answer, Hereditary effeects classified by categories?			
	a) 2	b) 3		
	c) 4	d) 5		
(x)	(x) Choose: Which of the following is a recommended way to reduce radiation exposure in medical imaging?			
	a) Use high dose radiation	b) Use low dose radiation		
/s.:1	c) Increase the frequency of imaging	d) Limit the use of protective equipmen	nt	
(XI)	Recognize the correct answer, The susceptibility accounted for	of a tissue or organ to radiation is		
	a) the equivalent dose	b) the effective dose		
/v::	c) the absorbed dose	d) None		
(XII)	Select the dose rate in the case of internally dep	posited radionuclides		
	a) Increases with time	b) Decreases with time		
(xiii	c) Is a constent function of time	d) None		
(/////	Tell the most important problem involving radia	tion exposure of the public is		
	a) radon	b) medical examination		
(xiv	c) accidents in nuclear power plant ) Tell the other term of Scintilation detector	d) All		
(	a) Gas field detector			
	c) lonising chember	b) Solid state detector		
(xv	State the type of GM counter	d) None		
	a) survey meter	b) pocket dosimetor		
	c) Expousing device	d) All of these		
		a, o. tilese		
	Grou	p-B		
	(Short Answer Ty	pe Questions)	3 x 5=15	
2. Describe the role of staff education and training in quality assurance for PACS.			(3)	
3. Describe how to keep track of radiation safety records for medical imaging.  4. Define the purpose and use of ion sharphare in great in the purpose and use of ion sharphare in great in the purpose and use of ion sharphare in great in the purpose and use of ion sharphare in great in the purpose and use of ion sharphare in great in the purpose and use of ion sharphare in great in the purpose and use of ion sharphare in great in the purpose and use of ion sharphare in great in great in the purpose and use of ion sharphare in great in gre				
<ul> <li>4. Define the purpose and use of ion chambers in measuring radiation dose.</li> <li>5. Explain the concept of collective effective dose and its use in radiation protection.</li> </ul>				
h lievelon a protocol for the use of desimate as it is			(3)	
е	xposure.	and the second s	(3)	
_	OF			
e	evelop a protocol for the use of film badges in m xposure.	onitoring occupational radiation	(3)	
	Gran	- C		
	<b>Grou</b> (Long Answer Ty			
	(Long Miswell Ty	pe Questions)	5 x 6=30	
7.	Describe quality assurance of X-ray unit.		<i>(</i> -)	
8.	Describe the biological effects of non-ionizing rad	diation like ultrasound lasers IR LIV and	(5)	
	magnetic fields.	and and assert in ov and	(5)	
	Explain GM counter with diagram.		(5)	
	Explain the concept of Effective dose?		(5)	
11.	Generalize the different types of PPE used in Dia	gnostic Radiology?	(5)	
12.	Explain QA test for Computed Tomography equip		(5)	
	OR  Illustrate the significnce of QA tests are required in Diagnostic Radiology? (5)			
		III Diagnostic Natiology?	(5)	