

**PARUL UNIVERSITY**  
**DEPARTMENT OF PARAMEDICAL AND HEALTH SCIENCES**  
**1<sup>st</sup> Internal Exam, MAR 2021-22**

Year: 1<sup>st</sup> year M.Sc.

Date: 08/03/2022

Subject code: 19210103

Time: 10:30 am

Subject Name: Instrumentation of Advanced Radiology Equipments

Total Marks: 40 marks

**Instructions:**

1. Attempt all questions from each section
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.

<b>Q.1:</b>	<b>Answer the following Questions (Any 5 out of 7)</b>	<b>(Each 1 Mark)</b>	<b>05 marks</b>
	(i) What is Anode angle		
	(ii) Atomic No. of W		
	(iii) What are Filters in X-ray tube		
	(iv) Define Portable & Mobile Equipments		
	(v) What is low KVp technique		
	(vi) Name of first MRI machine		
	(vii) What are MR active Nuclei		
<b>Q.2:</b>	<b>Answer the following Questions (Any 5 out of 7)</b>	<b>(Each 2 marks)</b>	<b>10 marks</b>
	(i) Explain the Relaxation in Different tissue		
	(ii) Difference between SPIN & PRECESSION		
	(iii) What is Free Induction Decay in MRI		
	(iv) What are Pulse Timing Parameter in MRI		
	(v) Explain the Relaxation in T1 & T2		
	(vi) What are Spin Echo pulse Sequences		
	(vii) Draw a well-labelled diagram of x-ray tube & its working		
<b>Q.3:</b>	<b>Answer the following Questions (Any 2 out of 3)</b>	<b>(Each 5 Marks)</b>	<b>10 marks</b>
	(i) Explain the LARMOUR EQUATION		
	(ii) Write in Detail about the Inversion Recovery Sequences		
	(iii) Write a short note on Rotating Anode		
<b>Q.4:</b>	<b>Answer the following Questions (Any 2 out of 3)</b>	<b>(Each 7.5 marks)</b>	<b>15 marks</b>
	(i) Explain in detail about the Basic Principle of MRI		
	(ii) Explain the MRI Artefacts and its types		
	(iii) The components that helps in the Production of X-Rays		