



**Rajiv Gandhi University of Health Sciences, Karnataka**  
**II Year B.Sc. Medical Imaging Technology Degree Examination - 17-May-2023**

**Time: Three Hours**

**Max. Marks: 100 Marks**

**RADIATION PHYSICS**  
**Medical Physics & Radiation Safety in Radio Diagnosis (RS-4)**  
**Q.P. CODE: 3290**

Your answers should be specific to the questions asked  
Draw neat labeled diagrams wherever necessary

**LONG ESSAYS (Second Question Choice)**

**2 x 10 = 20 Marks**

1. Explain the biological effects of radiation with acute radiation syndrome
2. Write in detail about the x-ray circuits  
**OR**  
Discuss briefly about the main voltage compensation

**SHORT ESSAYS (Question No 5 & 10 choice)**

**10 x 5 = 50 Marks**

3. Bridge rectification
4. Discuss the rating charts of x-ray tube
5. Explain rectifiers and rectification and application of rectifiers  
**OR**  
Explain principle, working, construction and types of transformers
6. Radiolysis of water
7. Explain the role of radiographer in radiation protection in the radiology department
8. Discuss about the mobile and portable x-ray machines and differentiate them
9. Explain angiographic room design and structural shielding
10. Name four QA test for the x-ray tube and explain any of one  
**OR**  
Scintillation detectors in detail
11. Explain the fluoroscopic x-ray tube
12. What is half value layer and explain the measurement of the half value layer?

**SHORT ANSWER**

**10 x 3 = 30 Marks**

13. Properties of alpha radiation
14. Radiation weighting factors
15. 28<sup>th</sup> day rule
16. Last Menstrual Period (LMP)
17. Specific activity
18. Genetic radiation effects
19. Functions of autotransformer
20. Radiation signages
21. Alpha decay
22. Isotopes and isotones

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