

Rajiv Gandhi University of Health Sciences, Karnataka
II Year B.Sc. Medical Imaging Technology Degree Examination – 23-Nov-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. What is rectification? Explain the types of rectifiers
2. Discuss the X-ray spectrum

OR

Explain the interactions of X-rays and Gamma rays with matter

SHORT ESSAYS (Question No 5 & 10 choice)

10 x 5 = 50 Marks

3. Discuss the working principle of Pocket Dosimeter
 4. Explain the "Line focus principle"
 5. Methods of x-ray tube cooling
- OR**
- Transformer losses
6. Explain the wave and particle nature of electromagnetic radiation
 7. Mains voltage drop – causes and remedy
 8. Metal ceramic x-ray tube
 9. Primary and secondary barriers in radiation protection
 10. Charged coupled device (CCD)
- OR**
- Television monitor
11. Radiation protection in pediatric patients
 12. Capacitor discharge generator

SHORT ANSWER

10 x 3 = 30 Marks

13. Classify Nuclides
14. Brief about the cardinal principles of radiological protection
15. High tension cables
16. Define – space charge effect and thermionic emission
17. Aperture diaphragm
18. Explain focused grids, its advantages and disadvantages
19. Draw any three radiation signage
20. Define – Half Value Layer (HVL) And Linear Attenuation Coefficient (LAC)
21. Explain the terms – Oxygen Enhancement Ratio (OER) and Absorbed Dose
22. Draw a neat diagram of stationary anode x-ray tube
