

QP CODE: 304018

Reg. No.....

**Third Year B.Sc MRT Degree Supplementary Examinations
October 2024
Radiological Protection and Statutory Aspects**

Time: 3 Hours

Max Marks: 100

- *Answer all questions to the point neatly and legibly • Do not leave any blank pages between answers • Indicate the question number correctly for the answer in the margin space*
- *Answer all parts of a single question together • Leave sufficient space between answers*
- *Draw table/diagrams/flow charts wherever necessary*

Essays:

(3x10=30)

1. Explain the shielding design for radiation installations.
2. What are the salient points of ICRU-38 Dose and Volume Specifications for reporting intracavitary therapy in Gynaecological Cancer
3. What are the program goals of a quality assurance program in radiation oncology. How is acceptance testing of a linear accelerator carried out

Short notes:

(8x5=40)

4. Effective dose equivalent
5. Non-stochastic effects of radiation
6. Workload of a megavoltage machine
7. Maximum permissible dose equivalent
8. Shielding against neutrons
9. Cutie Pie Survey Meter
10. Personnel monitoring devices
11. Quality assurance of HDR brachytherapy implant of prostate

Answer briefly:

(10x3=30)

12. Alpha-beta ratio
13. Hypoxic cell sensitisers
14. Mechanisms of DNA damage by ionising radiation
15. Clonogenic assays for cell survival
16. Continuous hyperfractionated radiotherapy (CHART)
17. What is a controlled area in a diagnostic x-ray facility
18. What is meant by a controlled radiation worker
19. What is kerma. What is the relationship between exposure, kerma and absorbed dose
20. How is internal shielding used in electron beam therapy
21. What is gated radiotherapy. Cite an example
