

QP CODE: 303018

Reg. No.....

**Third Year B.Sc MRT Degree Regular/Supplementary Examinations
April 2024**

Radiation Physics II

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. What is the role of beam modifying devices. Explain in detail about the various beam modifying devices used in radiotherapy.
2. Discuss in detail about Total Skin Electron Therapy (TSET) and Total Body Irradiation (TBI).
3. Explain the working principle of gamma camera with a neat labelled diagram.

Short notes:

(8x5=40)

4. PET scans.
5. Effective half-lives and its relation with biological half-lives.
6. Stereotactic Body Radiotherapy (SBRT).
7. Types of brachytherapy.
8. Flattening Filter Free (FFF) Beam in SRS/SBRT.
9. Factors that affect the PDD.
10. Interstitial implant in brachytherapy.
11. Write the characteristics of the radio isotope used in thyroid scan.

Answer briefly:

(10x3=30)

12. Explain Remote after loading technique in brachytherapy.
13. What are the ideal characteristics of teletherapy source.
14. What is MV CBCT and its use.
15. Explain Dose Volume Histogram and its uses.
16. Explain SAD technique of treatment delivery in radiotherapy.
17. Explain briefly electron and proton beams used in radiotherapy.
18. Types of Organs at Risk (OAR).
19. Planning Target Volume (PTV).
20. What are MLC and its use in radiotherapy.
21. How is geometric separation of adjacent fields determined.
