QP CODE: 303018 **Reg. No.....**

Third Year B.Sc MRT Degree Regular/Supplementary Examinations April 2023

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. Explain in detail working of a linear accelerator with a block diagram.
2. What are isodose lines. Describe the various factors influencing it.
3. Discuss in detail about the differences in PDD curve of photon and electron beams.

Short notes: **(8x5=40)**

4. Image Guided Radiotherapy (IGRT).
5. Define output of a linear accelerator.
6. Difference between conventional CT and CT simulator.
7. Immobilization devices used in radiotherapy.
8. Electron beam in radiotherapy.
9. Gamma knife.
10. Types of wedge filters used in teletherapy.
11. GTV, CTV and PTV.

Answer briefly: **(10x3=30)**

12. Explain CBCT and its application in radiotherapy.
13. Explain High Dose Rate (HDR) brachytherapy.
14. What is the difference between Stereotactic Radio Surgery (SRS) and Stereotactic Radiotherapy (SRT).
15. Explain briefly Particle beams used in radiotherapy.
16. Explain the use of Treatment Planning System (TPS).
17. What are the commonly used high dose rate brachytherapy sources. Explain its properties.
18. What is Integral dose in radiotherapy and its significance.
19. Explain the use of bolus in photon and electron beam treatment.
20. Empirical formula to find therapeutic range and practical range of an electron beam.
21. Volumetric Arc radiotherapy (VMAT).

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