

QP CODE: 303018

Reg. No.....

**Third Year B.Sc MRT Degree Supplementary Examinations
August 2018**

Radiation Physics II

Time: 3 Hours

Max Marks: 100

- **Answer all questions**
- **Draw diagrams wherever necessary**

Essays:

(3x10=30)

1. Explain with neat labelled diagram of the gantry head and beam collimation system of a linear accelerator and explain the functions of various of parts
2. Explain IMRT technique in detail.
3. Explain in detail about beam direction and beam modifying devices.

Short notes:

(8x5=40)

4. What isotopes are used in a HDR remote after-loading unit. Compare the merits and demerits of them as source of HDR remote after loading.
5. Steps involved in preparation of customized block for 3D CRT.
6. Physical half-life and biological half-life.
7. Define beam flatness and symmetry
8. Compare PDD and TMR with the help of a diagram.
9. Virtual simulation
10. Three field technique in EBRT
11. Standing waveguide.

Answer briefly:

(10x3=30)

12. Calculate the mg Ra equivalent of 10 mCi of ^{192}Ir
13. Differences between SRS and SRT.
14. Isocenter of an external beam treatment unit
15. Define clinical target volume (CTV).
16. Online verification and offline verification
17. Phantom materials.
18. Gated radiotherapy.
19. The diseases treated in TBI.
20. Define a field size in a clinical x-ray beam.
21. Range in electron.
