

QP CODE: 304018

Reg. No.....

**Third Year B.Sc MRT Degree Regular/Supplementary Examinations
March 2022**

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. Describe the biological cell structure with the help of a neat diagram.
2. What are the different personnel monitoring devices in use. Describe in detail.
3. Explain in detail the different regions in gas filled detector

Short notes:

(8x5=40)

4. Weighting factors used in radiation protection dose calculation
5. Ten-day rule and its use
6. Ionisation chamber
7. Single and double strand breaks
8. Transport Index
9. Explain RBE and OER
10. Stochastic and deterministic effects
11. Safety measures required during source transfer in radiotherapy

Answer briefly:

(10x3=30)

12. A spill of Tc-99m ($T_{1/2} = 6h$) after decontamination of the surface showed 1mR/h today at 10AM. By what time will the reading reduce to 0.06mR/h.
13. Explain Genetic effect of radiation
14. Quality assurance of fluoroscopy
15. Types of radioactive waste
16. Equivalent dose
17. Lead Apron
18. TLD Badge
19. LD50
20. LET
21. Natural radiation sources
