

Post M.Sc Diploma in Radiological Physics Regular/Supplementary Examinations October 2023

Radiation Safety

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*
- *Use of Calculators/physical and mathematical tables permitted.*

Essay:

(2x14=28)

1. What are the maximum permissible doses as prescribed by AERB for radiation workers and public. How radiation protection is ensured in a radiotherapy department with teletherapy and brachytherapy facilities. A technician is handling a 10mCi Cs-137 source from a distance of 50Cm. Within what time He/ She will receive the weekly permissible dose equivalent. (10+4)
2. What is RPR 2004. Where dose these rules apply. Who are “Employer”, “Licencee” and “RSO” according to RPR 2004. What are the responsibilities of Licencee according to RPR 2004.

Short Essays

(4x8=32)

3. What is meant by optimization of radiological protection. How this principle is achieved in the design of treatment head of a Co-60 unit.
4. What is a TLD badge. How is it used to measure the dose received by a person working in a radiation facility.
5. Briefly discuss the planning of tele therapy facility. What are the main differences in the design of Co-60 and linear accelerator rooms.
6. Briefly discuss transport of Radioisotopes. What are the regulations applicable to different modes of transport.

Short Notes

(10x4=40)

7. Tissue weighting factors.
8. DAC.
9. Radiation Hazards in Brachytherapy facility.
10. Disposal of radioactive waste.
11. Medical management of radiation emergencies.
12. Tracking of lost radiation source.
13. Special safety features in accelerators.
14. Medical exposures.
15. Radiation dose from natural sources.
16. Effect of distance on external radiation hazard.
