

**Post M.Sc Diploma in Radiological Physics Regular/Supplementary
Examinations October 2025**

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*
- *Simple calculator shall only be permitted*

Essay:**(2x14=28)**

1. What are the emergency procedures during small amount of radioactive spillage and large amount of radioactive spillage in nuclear medicine dept. Draw a neat sketch of PET-CT facility. Write short notes on PET-CT. (9+5)
2. What are the responsibilities of RSO in nuclear medicine dept.
Calculate the barrier transmission factor in 15 MV linear accelerator room for the work load 10000cGy/week. The maximum permissible dose at outside primary wall should not exceed 1mSv/week. The primary wall is at 3 meters distance from isocentre. Given values for Use factor =1 and occupancy factor =1. (9+5)

Short Essays**(4x8=32)**

3. Explain various categories of exposures in detail.
4. Explain radiation hazards in medical diagnostic and therapy installations.
5. Classify the radioactive waste. Explain the treatment techniques for solid, liquid and gases effluents.
6. Write a short note on safety and security of sources to be taken in brachytherapy and nuclear medicine departments.

Short Notes**(10x4=40)**

7. Define neutron flux.
8. Define ALI.
9. What is bioassay and air monitoring.
10. What are the reasons for radiation accidents.
11. Give four examples of radiation protection plans in brachytherapy
12. What are the safety features in linear accelerator facility.
13. Who is consignor and who is carrier. What is consignment.
14. Safety and security of sources.
15. Give details on the role of RSO when the source lost.
16. Explain radiation injuries and their treatment.
