

**Post M.Sc Diploma in Radiological Physics Examinations
October 2018**

Radiation Therapy

Time: 3 hours

Max. Marks: 100

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

Essay: (2x14=28)

1. Explain the working of linear accelerator with diagram. What is the role of multi leaf collimator in advance treatments.
How many monitor units are required to deliver 200 cGy at depth 10 cm for field size 10x10 cm² in SAD setup for photon beam of 6 MV (TMR for 10x10cm²=0.771; output factor for 10x10 cm²=1.0) (9+5)
2. Explain the quality assurances for treatment planning system. Give names of two algorithms and its function. (9+5)

Short Essays (4x8=32)

3. Explain various wedges used in Radiotherapy
4. Define tissue air ratio, tissue maximum ratio, percentage depth dose and tissue phantom ratio.
5. Explain various steps involved in 3D Conformal Radiotherapy
6. What is EPID. How this is useful to perform quality assurance in radiotherapy.

Short Notes (10x4=40)

7. Define isocentre
8. Explain virtual simulation.
9. What is build up region
10. Write applications for radiation field analyzer
11. What is the advantage of multiple fields
12. Define integral dose
13. What is effective SSD in electron therapy.
14. Explain neutron capture therapy.
15. What is the principle of stereotactic radiotherapy
16. Tissue Compensators
