

QP Code: 107391

Reg. No.....

**Post M.Sc Diploma in Radiological Physics Regular/Supplementary
Examinations October 2019**

Radiation Therapy

Time: 3 hours

Max. Marks: 100

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

Essay: (2x14=28)

1. Explain intensity modulated radiotherapy and its advantages over conventional radiotherapy. What is the role of stereotactic radiosurgery in treating brain tumors. How many monitor units are required to deliver 220 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 in detail the role of four-dimensional computed tomography in radiation oncology. When is total body radiotherapy implemented and explain the tools and procedures involved in implementing total body irradiation. (9+5)

Short Essays (4x8=32)

3. Define penumbra. What is the advantage of breast cones.
4. Define flatness and symmetry with formulas in photon beams.
5. Write few important quality assurances in linear accelerators.
6. Explain intracavity and interstitial brachytherapy.

Short Notes (10x4=40)

7. Define tissue maximum ratio
8. Write a relation between TMR and PDD
9. Define universal wedge
10. Explain SSD & SAD and the difference.
11. What is Isodose Curves and what are the parameters affecting them.
12. Explain inverted Y field
13. Write short notes on Integral Dose
14. Write on surface mould applicator.
15. Write short notes on mammosite.
16. What is stereotactic body radiotherapy and write few lines on its advantage
