

QP Code: 107391

Reg. No.....

Post M.Sc Diploma in Radiological Physics Examination July 2016

Radiation Therapy

Time: 3 hours

Maximum Marks: 100

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

Essay:

(2x14 = 28)

1. Explain the construction and working of tele cobalt units with neat block diagram. To treat a patient in SAD setup using 15 degree wedge in two fields with equal doses of 100cGy each in a photon beam of 6MV, how many monitor units are required in each field to deliver the prescribed dose at depth 10 cm for field size of 10x10 cm². (TPR for 10x10 cm² = 0.771; output for 10x10 cm² = 1.00; wedge factor= 0.70). (9+5=14)
2. Define stereotactic radiosurgery and stereotactic radiotherapy. Give brief description of SRS. What quality assurances will be performed before SRS treatment and explain. (9+5=14)

Short Essays

(4x8=32)

3. What are algorithms
4. Define wedge, dynamic wedge and universal wedge.
5. What is the role of simulator. Explain CT-simulator.
6. Why do we use immobilizations. Explain various immobilization systems. Add a note on mould.

Short Notes

(10x4=40)

7. Thoraesus filter
8. Breast cones
9. Dose monitor
10. Electron contamination
11. SAR and SMR.
12. Shielding blocks
13. Conformal radiotherapy
14. Sievert integral
15. Interstitial brachy therapy
16. Cone beam CT.
