

QP Code: 107391

Reg. No.....

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

Radiation Therapy

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. Describe the role of CT-simulator in radiotherapy planning.
How many monitor units are required to deliver 180 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 high dose rate brachytherapy machine. What are the advantages of remote after loading HDR with manual brachytherapy. (9+5)

Short Essays

(4x8=32)

3. Draw a neat sketch on spectral distribution of kv x-rays and explain in few lines.
4. Define integrated dose and explain arc therapy.
5. Explain heavy ion therapy
6. What we do in acceptance and commissioning of linear accelerator.

Short Notes

(10x4=40)

7. Define backscatter factor.
8. Define percentage depth dose
9. What is isodose
10. Define wedge.
11. Explain mantle field.
12. Write few lines on conformal therapy.
13. Write two quality assurances in linear accelerators and its use.
14. Explain interstitial brachytherapy.
15. Write a short on Cyber Knife.

16. Multileaf collimator
