

**PG Degree Supplementary Examinations in Radiation Oncology  
(MD) January 2024**

**Paper I – Radiation Physics, Radiobiology & Other Basic Sciences**

**Time: 3 hrs**

**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*

**Essay:**

**(20)**

1. (a) Write a neat labelled diagram of cell survival curve and explain the factors affecting it.  
(b) Write a note on biological basis of fractionation.  
(c) Write clinical application of fraction in radiotherapy (10+5+5)

**Short essays:**

**(8x10=80)**

2. Explain the role and types of bias in clinical trials and also write a note on how to prevent BIAS while planning a clinical trial
3. Define wedge angle and clinical applications of wedges
4. Four Rs of radiation therapy and explain the utilisation in clinical practice
5. Explain about Stochastic and deterministic effects
6. Compare and contrast 3DCRT versus IMRT in a tabular form
7. A 35-year-old female came with history of ca breast in her mother. Advise the appropriate screening modalities that would be used in her
8. Write a brief note on ICRU recommendation in external beam radiotherapy
9. Role of Radiation Protectors in oncology

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