

**B.Sc. RADIOTHERAPY TECHNOLOGY****FIRST YEAR****PAPER III – RADIOTHERAPY PHYSICS AND PRINCIPLES OF  
RADIOTHERAPY***Q.P. Code: 801908***Time: Three Hours****Maximum: 100 Marks****Answer all questions****I. Elaborate on:****(3 x 10 = 30)**

1. Explain in detail the process of interaction of electron with matter.
2. List the different types of telecobalt shutter systems. Write a detailed note about the working of a telecobalt unit with a neat diagram.
3. Physical components of a linear accelerator.

**II. Write notes on:****(8 x 5 = 40)**

1. Energy transfer and energy absorption coefficients.
2. Immobilization devices in radiotherapy.
3. Define half – life of a radioactive substance. Derive the relationship between half-life and linear attenuation coefficient.
4. Isodose curve.
5. Compensators.
6. Compare the SSD technique with SAD technique.
7. Attenuation, scattering, absorption.
8. Bolus.

**III. Short answers on:****(10 x 3 = 30)**

1. Particle range.
2. Advantages of rotational technique.
3. IGRT.
4. What is the difference between SRS and SRT?
5. Wedges.
6. What are shielding blocks used for? Give one disadvantage.
7. What is skin sparing effect?
8. What is bragg peak?
9. What is natural and artificial radioactivity?
10. Decay process series of Co-60 source.

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