

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. State the laws of radioactive decay. Derive the relationship between half-life and decay constant of radioisotope.
2. Explain in detail the process of Interaction of electron with matter.
3. Describe elaborately the technique of Stereotactic radiosurgery.

II. Write notes on:

(8 x 5 = 40)

1. Define half-life of a radioactive substance. Derive the relationship between half-life and linear attenuation coefficient.
2. Gamma knife Unit
3. Various patient immobilization devices used in radiotherapy.
4. The factors which influence the Tissue Air Ratio?
5. Pair production.
6. Isodose curve.
7. Radioisotopes used in Medicine.
8. Compare the SSD technique with SAD technique.

III. Short answers on:

(10 x 3 = 30)

1. Delta rays.
2. Stopping power ratio.
3. Bragg curve.
4. Scatter Air Ratio.
5. Tissue Compensator.
6. Ionization.
7. Particle range.
8. Linear Energy Transfer.
9. Advantages of rotational technique.
10. Wedges.