

**B.Sc. RADIOTHERAPY TECHNOLOGY**

**SECOND YEAR**

**PAPER II – RADIOTHERAPY EQUIPMENTS, APPLICATIONS & MAINTENANCE**

*Q.P. Code: 801932*

**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Discuss in detail about the different source movement mechanism in tele-Cobalt machine with suitable diagram.
2. Explain in detail about the physical components of a linear accelerator.
3. Explain the orthogonal simulation procedure for an intracavitary brachytherapy application.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Write about physical and motorized wedges.
2. Write about Gamma Knife unit.
3. Write about simulator.
4. Differences between SSD and SAD treatment techniques.
5. Write about the physical characteristics of Ir-192 brachytherapy source.
6. Explain Tissue Air Ratio.
7. Write about the mechanical QA checks in a linear accelerator.
8. Betatron.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Define Air Kerma Strength.
2. Flatness and Symmetry.
3. Draw the decay scheme of Co-60.
4. Penumbra.
5. Radiation Field Analyzer.
6. Back Scatter factor.
7. Calculate the equivalent square field for  $8 \times 16 \text{ cm}^2$ .
8. Orthovoltage therapy.
9. Planning Target Volume (PTV).
10. Wedge transmission factor.

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