

B.Sc. RADIOTHERAPY TECHNOLOGY

FIRST YEAR

**PAPER II – BASIC PHYSICS, RADIATION PHYSICS & BASIC OF
CLINICAL RADIOGRAPHY/IMAGING**

Q.P. Code: 801907

Time: Three Hours

Maximum: 100 Marks

Answer all questions

I. Elaborate on:

(3 x 10 = 30)

1. Describe the construction and working of Modern X-ray tube.
2. Discuss Photo-electric absorption, Compton scattering and pair production process.
3. Explain in detail film processing method. Explain the effects of temperature and development time in film processing.

II. Write notes on:

(8 x 5 = 40)

1. Electromagnetic spectrum.
2. Quantum theory of radiation.
3. Explain the principle of fluoroscopy. Explain the construction of the image intensifier.
4. Alpha and Beta decay with examples.
5. Types of radioactive decay with examples.
6. Basic principles of MRI and imaging methods.
7. Difference between CT and MR images.
8. Bremsstrahlung X-ray spectrum.

III. Short answers on:

(10 x 3 = 30)

1. Bio effects of MRI.
2. Optical density.
3. Define tenth value thickness (TVT).
4. Linear attenuation coefficient.
5. Ohms law.
6. PET CT.
7. Define one joule.
8. Transformer.
9. Image unsharpness.
10. Constituents of atom.
