

**B.Sc. RADIOTHERAPY TECHNOLOGY**  
(New Syllabus 2018-2019)

**FIRST YEAR**

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

*Q.P. Code: 801942*

**Time: Three Hours**

**Maximum : 100 Marks**

**Answer All Questions**

**I. Elaborate on:** **(3 x 10 = 30)**

1. With neat sketch describe the construction and working of rotating anode X-ray tube. Discuss the factors affecting quality and intensity of X-ray production.
2. Discuss in detail about X-ray film construction and describe various film processing methods.
3. Describe MRI instrumentation and imaging sequences. What are the differences between CT and MRI images?

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

1. Properties of Electromagnetic radiation.
2. Galvanometer and Multimeter.
3. Radioactive decay.
4. Artificial production of radio isotopes.
5. Compton scattering and its significance
6. Fluoroscopy and image intensifier.
7. CT scanning principle and image reconstruction methods.
8. SPECT and PET.

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

1. Relationship between wavelength, frequency and energy.
2. Isotopes and isobars with examples.
3. Electric Potential.
4. X-ray filters.
5. Electron capture.
6. Linear attenuation coefficient.
7. Film density and contrast.
8. Fluorescence and Fluorescent materials.
9. Hysteresis.
10. CT detectors.