

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 1122]

NOVEMBER 2022

Sub. Code: 1907

**B.Sc. RADIOTHERAPY TECHNOLOGY
FIRST YEAR (Regulation 2014-2015)
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. Write in detail the principle, construction and working of a rotating anode X-ray tube.
2. Write an essay on X-ray film construction and film characteristics.
3. Explain the process of alpha, beta and gamma decay with suitable examples.

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

1. Write notes on electromagnetic spectrum.
2. Excitation and ionization.
3. Step up and step down transformer.
4. Explain Linear and mass attenuation coefficients, HVT and TVT.
5. Compton effect.
6. Distinguish between continuous spectrum and characteristic spectrum.
7. Factors affecting the fluoroscopic image.
8. Electron capture and internal conversion.

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

1. SI unit of Temperature.
2. Define Isotope and Isomer.
3. Heel effect.
4. Relationship between Wavelength, Frequency and Energy.
5. Fog and noise.
6. Tube voltage.
7. Coulomb's law.
8. Half-life.
9. Nucleon.
10. Image Intensifier.
