

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

[AHS 0423]

APRIL 2023

Sub. Code: 1942

**B.Sc. RADIOTHERAPY TECHNOLOGY
FIRST YEAR (Regulation 2018-2019 onwards)
PAPER II – RADIATION PHYSICS & BASIC OF CLINICAL
RADIOGRAPHY/IMAGING
Q.P. Code: 801942**

Time: Three Hours

Answer All questions

Maximum: 100 Marks

I. Elaborate on:

(3 x 10 = 30)

1. Explain in detail about Film Processing Method.
2. Write principle of Fluoroscopy and explain the construction and working of an Image Intensifier.
3. Explain the construction and working of a Stationary Anode X-ray tube.

II. Write notes on:

(8 x 5 = 40)

1. Step up and step down transformer.
2. Explain atomic number, mass number, electron orbit and energy levels.
3. Continuous spectrum, characteristic spectrum.
4. Basic Principles of MRI.
5. Quantum theory of radiation.
6. Explain Linear and mass attenuation coefficients, HVT and TVT.
7. Photoelectric absorption.
8. Importance of filters in an X-ray tube.

III. Short answers on:

(10 x 3 = 30)

1. Define Isotope and Isobar.
2. Fog and noise.
3. Coulomb's law.
4. Half-life.
5. Difference between CT and MRI.
6. Nuclear fission.
7. Bio effects of MRI.
8. Ohm's Law
9. Specific activity.
10. Relationship between Wavelength, Frequency and Energy.
