

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

[AHS 1023]

OCTOBER 2023

Sub. Code: 2402

**M.Sc. RADIOTHERAPY TECHNOLOGY
FIRST YEAR (From 2020-2021 onwards)
PAPER III – IMAGING MODALITIES, EQUIPMENT OPERATION SAFETY
AND MAINTENANCE RELATED TO RADIOTHERAPY AND MEDICAL
PHYSICS**

Q.P. Code: 282402

Time: Three hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate notes on:

(2 x 20 = 40)

1. Explain in detail influence quantities in ionization chamber dosimetry measurements.
2. Explain with layout the barrier calculations of a 6MV Linear accelerator.

II. Write Short Notes on:

(10x6 = 60)

1. Principle of Gas Filled Detectors.
2. What is shutter error? How will you measure and correct it?
3. Explain the three types of half-life.
4. Explain Somatic effects and hereditary effects.
5. Explain different types of ion chambers with suitable diagrams.
6. Explain Beta ray applicators.
7. Describe and compare Ir-192 and Cobalt 60 HDR brachytherapy source.
8. Write a note on thermal and fast neutrons and explain the similarities.
9. What is cavity theory? Explain in detail.
10. Philosophy of radiation protection.
