

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

[AHS 0321]

MARCH 2021

Sub. Code: 2402

(OCTOBER 2020 EXAM SESSION)

M.Sc. RADIOTHERAPY TECHNOLOGY

FIRST YEAR (From 2019-2020 onwards)

**PAPER II – 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. As per IAEA TRS 398 protocol, write in detail calibration of Telecobalt machine.
2. What is workload, Occupancy and Use factor? Explain with suitable diagrams the barrier calculations of a 6MV linear accelerator.

II. Write Short Notes on:

(10x6 = 60)

1. Define the term radiation. Compare X-rays and gamma rays. Explain the three types of half-life.
2. What is cavity theory? Explain in detail.
3. What is Radiation field analyzer? Explain its uses.
4. What is shutter error? How will you measure and correct it?
5. Explain in detail the philosophy of radiation protection.
6. Write the occupational dose limits in detail.
7. Write a notes on Telecobalt source and HDR brachytherapy source.
8. Explain with suitable diagram free air chamber.
9. Explain Chromosomal aberration and its application for the biological dosimetry
10. Write the principles of Thermo Luminescence Dosimeters and their use in personnel monitoring badges with suitable diagrams.
