THE TAMIL NADU M.G.R. MEDICAL UNIVERSITY

[AHS 1023] **OCTOBER 2023** **Sub. Code: 4033**

M.Sc. MEDICAL PHYSICS
SECOND YEAR (From 2020-2021 onwards)
PAPER III – PHYSICS OF NUCLEAR MEDICINE AND INTERNAL DOSIMETRY

Q.P. Code: 284033

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate notes on: **(2 x 20 = 40)**

1. Write in detail about, construction and function of Gamma camera.

2. Discuss about principles and operation of single photon emission tomography.

II. Write Short Notes on: **(10x6 = 60)**

1. What is internal dosimetry and discuss about beta particle dosimetry.
2. Write in detail about principle and design of Anger camera / Scintillation camera.
3. What are the limitation of detector systems and Electronics?
4. Explain scintillation detector and Photo multiplier tube.
5. Discuss various image reconstruction techniques.
6. Discuss in detail about principles of PET scan.
7. Explain construction and working of medical Cyclotron.
8. Mention different types Radio isotopes used in nuclear medicine and tabulate its half life.
9. Explain treatment of Thyrotoxicosis, thyroid cancer with I- 131.
10. Discuss about Renogram, life span of RBC, Blood volume studies.

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