

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

[AHS 0122]

**JANUARY 2022
(OCTOBER 2021 EXAM SESSION)**

Sub. Code: 2311

**M.Sc. NUCLEAR MEDICINE TECHNOLOGY
SECOND YEAR (From 2019-2020 onwards)
PAPER I-NUCLEAR MEDICINE INSTRUMENTATION – II - MRI, PET & SPECT
*Q.P. Code : 282311***

Time: Three hours

Answer ALL Questions

Maximum: 100 Marks

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

1. Discuss the principle, working and components of gamma camera?
2. Explain the advantages and disadvantages of hybrid nuclear medicine imaging modalities?

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

1. Use of Collimators and different collimators used in gamma imaging?
2. Explain working of Analogue to digital converter (ADC)?
3. Brief note on Time-of-flight (TOF) imaging in PET?
4. Explain Filtered back projection and filters used in nuclear medicine (High pass and low pass filters)?
5. Ideal properties of scintillating crystals used in Nuclear Medicine?
6. Factors affecting resolution of PET imaging?
7. Compare 2D and 3D PET imaging?
8. Attenuation correction imaging in PET imaging?
9. Explain the working of a photo multiplier tube (PMT) with help of a diagram?
10. What is Standardized Uptake Value (SUV), its significance in PET imaging and Factors affecting SUV?
