

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

[AHS 0921]

**SEPTEMBER 2021  
(MAY 2021 EXAM SESSION)**

**Sub. Code: 2306**

**M.Sc. NUCLEAR MEDICINE TECHNOLOGY  
FIRST YEAR (From 2019-2020 onwards)  
PAPER VI – NUCLEAR MEDICINE INSTRUMENTATION - I  
*Q.P. Code : 282306***

**Time: Three hours**

**Answer ALL Questions**

**Maximum: 100 Marks**

**I. Elaborate notes on:**

**(2 x 20 = 40)**

1. Briefly describe the parameters for assessment of performance of radiation detector and explain the properties of a gas-filled ionization detector.
2. Describe the physical principles and components in the basic design of a PET/CT system and explain the principles of quality control of PET/CT system.

**II. Write Short Notes on:**

**(10x6 = 60)**

1. Photomultiplier Tube.
2. Collimators used in gamma camera imaging.
3. Calibration procedure for dose calibrator.
4. Time of flight scanners.
5. Poisson distribution.
6. Scintillation crystal.
7. Design of an intra-operative gamma probe.
8. Energy discriminator.
9. Co-registration of PET/CT.
10. Butterworth filter.

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