

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

**[MD 0522]**

**MAY 2022**

**Sub. Code: 3016**

**M.D. DEGREE EXAMINATION**

**BRANCH XXIV – NUCLEAR MEDICINE**

**PAPER I – BASIC SCIENCES AND INSTRUMENTATION IN  
NUCLEAR MEDICINE COMPUTERS AND MATHEMATICS IN NUCLEAR  
MEDICINE AND COMPARTMENTAL ANALYSIS**

***Q.P. Code: 203016***

**Time : Three Hours**

**Maximum : 100 Marks**

**I. Write short notes on:**

**(20 x 5 = 100)**

1. Various modes of radioactive decay.
2. Parameters for assessment of performance of a radiation detector.
3. Different types of collimators used in gamma camera imaging.
4. Properties of a gas-filled ionization detector.
5. Principles of PET data acquisition.
6. Poisson distribution.
7. Correlation coefficient.
8. Confidence interval.
9. Tests for co-registration of PET/CT.
10. Design of an intra-operative gamma probe.
11. Photomultiplier Tube.
12. Scintillation crystal.
13. Energy discriminator.
14. Properties of a survey monitor.
15. Components in the basic design of a SPECT/CT system.
16. Ramp filter.
17. Basic principle of compartment analysis.
18. Deconvolution in nuclear medicine imaging.
19. Fan beam collimator.
20. TLD badge.

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