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

[MD 1224] **DECEMBER 2024** **Sub. Code: 4069**

M.D. DEGREE EXAMINATION

NUCLEAR MEDICINE

PAPER I – BASIC SCIENCES RELATED TO NUCLEAR MEDICINE

Q.P. Code: 204069

Time : Three Hours **Maximum : 100 Marks**

I. Write short notes on: **(20 x 5 = 100)**

1. Partition coefficient.
2. Frame mode Acquisition.
3. Deconvolution analysis and its clinical utility.
4. Holospectral imaging.
5. ACD.
6. LSF.
7. FBP.
8. Contrast detail studies.
9. Cathode ray tube.
10. Types of measurement errors.
11. Energy linearity.
12. Gas flow counters.
13. Parallel hole collimator.
14. Factors affecting spatial resolution.
15. 3D PET reconstruction.
16. MIRD.
17. Scatter correction.
18. FWHM.
19. Chi square test.
20. Image Non linearity.

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

[MD 1025] **OCTOBER 2025** **Sub. Code: 4069**

M.D. DEGREE EXAMINATION

NUCLEAR MEDICINE

PAPER I – BASIC SCIENCES RELATED TO NUCLEAR MEDICINE

Q.P. Code: 204069

Time : Three Hours **Maximum : 100 Marks**

I. Write short notes on: **(20 x 5 = 100)**

1. Compton scatter.
2. Isobar, isotones, isotopes, isomers.
3. DE convolution analysis and its clinical utility.
4. Radiation weighted dose.
5. Histogram equalization.
6. N-gamma reaction.
7. Neutron activation analysis and implications.
8. Truncation artifacts.
9. Scatter and random correction in PET.
10. Principles of Nuclear reactor.
11. Cardiac PET.
12. Pin hole collimator.
13. Factors affecting detector sensitivity.
14. Decision matrix and its applications.
15. Compartmental analysis.
16. Phases of clinical trials.
17. Bi-exponential fitting.
18. Resolution recovery.
19. Surface rendering.
20. eLORA.

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

[MD 0926] SEPTEMBER 2026 Sub. Code: 4069

M.D. DEGREE EXAMINATION

NUCLEAR MEDICINE

PAPER I – BASIC SCIENCES RELATED TO NUCLEAR MEDICINE

Q.P. Code: 204069

Time : Three Hours **Maximum : 100 Marks**

I. Write short notes on: **(20 x 5 = 100)**

1. List mode acquisition.
2. Noise equivalent count rate.
3. Digital image acquisition and analysis.
4. Non- parametric statistics.
5. Quality control of Well counter.
6. DICOM technology.
7. Emissions accompanying radioactive decay and their biological implications.
8. Daily check of Uptake Probe.
9. Pulse height analyzers.
10. Avalanche Photodiode.
11. Energy resolution.
12. Pocket Dosimeter.
13. Multi-pin hole collimator.
14. Factors that determine Sensitivity of a system.
15. Time of flight.
16. Flash ADC.
17. Low-pass Filters in image reconstruction.
18. Proportional counter.
19. Dead time resolution of Gamma Camera.
20. Gamma zone monitor.

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