[LM 120] MAY 2018 **Sub. Code: 3001**

M.D. DEGREE EXAMINATION

BRANCH XXIV – NUCLEAR MEDICINE

PAPER I – BASIC SCIENCES AND INSTRUMENTATION OF NUCLEAR MEDICINE

Q.P. Code :203001

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

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

1. Gaussian distribution.
2. Dose calibrator.
3. Characteristics of parallel hole collimator.
4. Null hypothesis.
5. Design of a liquid scintillaton counter.
6. Tomographic reconstruction.
7. Basics of SPECT-CT hybrid imaging.
8. Digital image acquisition.
9. Pair production.
10. Principles of PET data acquisition.
11. Correlation coefficient.
12. Well Counters.
13. Design of an intra-operative gamma probe.
14. Non-parametric tests.
15. Confidence interval.
16. Applications of image filters.
17. Scintillation crystal.
18. Energy discriminator.
19. Physical principles and components in the basic design of a SPECT/CT system.
20. Various modes of radioactive decay. Give example for each of them.

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[LO 120] MAY 2019 **Sub. Code: 3001**

M.D. DEGREE EXAMINATION

BRANCH XXIV – NUCLEAR MEDICINE

PAPER I – BASIC SCIENCES AND INSTRUMENTATION OF NUCLEAR MEDICINE

Q.P. Code: 203001

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

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

1. Anatomy of the Biliary system.
2. Cervical lymph nodes.
3. Mechanism of bone mineralisation.
4. Pathophysiology of renin dependent renovascular hypertension.
5. Ventricular system of the brain.
6. Thyroid hormone synthesis and release.
7. Cardiac ejection fraction.
8. Physiology of adrenal medulla.
9. Drugs that interfere in iodine uptake.
10. Bacterial endotoxins test.
11. Mechanism of norepinephrine uptake and storage.
12. Poisson distribution.
13. Photoelectric absorption.
14. Theory of operation of gas filled detectors.
15. Sodium iodide spectroscopy.
16. Auger electrons.
17. Collimator design parameters.
18. Semiconductor detector.
19. SPECT camera acceptance tests.
20. Corrections for PET data.

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