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

**[AHS 0522]** **MAY 2022** **Sub. Code: 2306**

**M.Sc. NUCLEAR MEDICINE TECHNOLOGY**
**FIRST YEAR**
**(Candidates admitted from 2019-2020 onwards – Paper VI)**
**(Candidates admitted from 2020-2021 onwards – Paper VII)**
**PAPER VI & VII – 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. Define SPECT and explain the basic principles behind the emission computed tomography.

2. Explain the steps involved in preparation of a patient for 18F-FDG PET Scan. Also list out the various modes of PET-CT Acquisition.

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

1. Interpretation of Sensitivity, Specificity, Prevalance and Accuracy and use in Nuclear Medicine.
2. Design and Operation of PET-CT system.
3. Describe Filters and explain the Low pass filter and Restoration filters.
4. Imaging techniques and Acquisition Parameters in obtaining flow studies, blood pool imaging – with specific response to performing a Bone Scan.
5. Filtered Back Projection and Iterative Reconstruction: Salient points.
6. Circular and Body countour orbits in SPECT CT Image acquisition.
7. Routine Quality Control Parameters in a SPECT CT.
8. Preparation and Imaging a Child with PET CT.
9. Partial volume effect and its significance in image reconstruction.
10. Intraoperative Gamma Probes.

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