NUCLEAR MEDICINE

PAPER-I

Time: 3 Hours
Max. Marks: 100

NM/D/19/24/I

Important Instructions:

- *Attempt all questions in order.*
- *Each question carries 10 marks.*
- *Read the question carefully and answer to the point neatly and legibly.*
- *Do not leave any blank pages between two answers.*
- *Indicate the question number correctly for the answer in the margin space.*
- *Answer all the parts of a single question together.*
- *Start the answer to a question on a fresh page or leave adequate space between two answers.*
- *Draw table/diagrams/flowcharts, wherever appropriate.*

Write short notes on:

1. Types of PET detectors: characteristics, advantages and disadvantages. Which one will you select for your department and why?   8+2

2. What are phantoms? Discuss types of phantoms and their use in Nuclear Medicine.   2+8

3. a) Attenuation correction in PET-CT.   5+5
   b) Filters used in SPECT.

4. Principle, design and uses of intra operative gamma probe.   10

5. Explain SUV and other quantitative PET parameters. What factors affect them? Which SUV will you routinely use and why?   5+3+2

6. Transient and secular equilibrium with examples.   5+5

7. a) Define HVT, TVT, LET, RBE & OER.   5+5
   b) What is PMT? Discuss working and uses of PMT in Nuclear Medicine.

8. a) What is Sensitivity, Specificity, PPV and NPV?   5+5
   b) Phases of clinical trials.

9. a) DICOM and PACS.   5+5
   b) Auger electron and utility.

10. a) Liquid scintillators.   5+5
    b) Quenching.

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