

**NUCLEAR MEDICINE**

**PAPER-IV**

Time: 3 Hours  
Max. Marks: 100

NM/D/19/24/IV

**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. Response assessment criteria and role of PET-CT in assessment of response to immunotherapy agents. 5+5
2. Discuss the indications of PET-MRI. What are its advantages and disadvantages? 5+5
3. a) PEM – merits and demerits. 5+5  
b) PET guided biopsy and its uses.
4. a) PETNET score. 5+5  
b) miTNM classification.
5. a) Angiogenesis imaging. 5+5  
b) Insulinoma imaging.
6. a) Dose limits for radiation worker. 5+5  
b) External contamination monitoring.
7. Discuss the currently available alpha-therapy agents and their indications. 10  
What are the benefits and pitfalls of alpha-therapy over conventional beta-particle therapy?
8. Misadministration of radiopharmaceuticals: types, causes, consequences and prevention. 10
9. a) UN number and TREM Card. 5+5  
b) Transport of radioactive packages.
10. <sup>18</sup>F-Fluoro-DOPA: is it a multifaceted imaging agent? Your opinion and justification. 10

\*\*\*\*\*