

**NUCLEAR MEDICINE****PAPER-II**

Time: 3 hours

NM/D/20/24/II

Max. Marks:100

**Important Instructions:**

- **You are provided with 5 answer sheet booklets. Each individual answer sheet booklet consists of 10 pages excluding the covering jackets.**
- **Answers to all the questions must be attempted within these 5 answer sheet booklets which must be later tagged together at the end of the exam.**
- **No additional supplementary answer sheet booklet will be provided.**
- *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. a) 18F-FET vs. 18F-FDOPA in glial tumors. 5+5  
b) Why F18 Sodium Fluoride bone scan is not able to replace Tc99m MDP bone scan?
2. a) LAL test . 5+5  
b) Swipe test.
3. What are the principles radionuclide generators in nuclear medicine? 7+3  
Describe the various PET radionuclide producing generators.
4. Name the various available bone pain palliation agents for the Indian 6+4  
patients. What are the emerging radiopharmaceuticals for similar applications?
5. a) 18F-Choline vs. 99mTc-Sestemibi. 5+5  
b) 18F-Fluciclovine vs. 68Ga-PSMA11.
6. Name useful alpha-emitters currently available and their characteristics. 7+3  
Why in India we are not able to produce such radionuclides?
7. Describe various bi-functional chelators. Justify how twenty-first century 5+5  
radiochemistry has been changed due to such chelants.
8. Name various peptide-based radiopharmaceuticals and describe one in 5+5  
details.
9. a) Imaging agents for insulinoma. 5+5  
b) Imaging agents for Neuroblastoma.
10. Describe the imaging artefacts in SPECT and SPECT/CT. How will you 7+3  
avoid or minimize them?

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