

NUCLEAR MEDICINE
PAPER - II

NM/D/13/24/II

Time : 3 hours
Max. Marks : 100

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.

1. Define Radiopharmaceutical. What are the properties of ideal radiopharmaceuticals used in imaging? Enumerate the route of administration and mechanisms of localization with examples. 1+3+(2+4)
2. What is a generator? Write in detail about the two generator systems, one each for SPECT and PET useful in a diagnostic Nuclear Medicine department. 2+(4+4)
3. Discuss in detail the Quality Control (QC) procedures used to determine the radiochemical purity and sterility of a radiopharmaceutical. 5+5
4. Define Pharmacological Intervention in Nuclear Medicine. Enumerate the dosages, routes of administration and side effects of various drugs used for intervention in Nuclear Medicine. 2+8
5. Write physical properties of ^{68}Ga and list out the various ^{68}Ga labeled pharmaceuticals with their applications in diagnostic imaging. 2+8
6. Compare and contrast various radiopharmaceuticals useful for metastatic bone pain palliation. 10
7. Define radiation synovectomy. Describe its principle, procedure, various radioisotopes used, indications, contraindications and complications. 10
8. Discuss the mechanism of localization and application of non FDG, ^{18}F & ^{11}C labeled radiopharmaceuticals. 10
9. Write short notes on:
a) r TSH
b) Grave's ophthalmopathy 5+5
10. Describe the principle, preparation, procedure and indications of TARE. Mention various radio-isotopes used with their merits and demerits. 5+5
