

NUCLEAR MEDICINE

PAPER-II

Time: 3 Hours
Max. Marks: 100

NM/D/19/24/II

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. Radionuclide generators: principle and working. Describe the types of generators with examples. 10
2. Describe how will you commission a new Nuclear Medicine facility as per AERB guidelines. 10
3. a) Types of medical cyclotrons. 5+5
b) FDG synthesis.
4. Enumerate all Iodine isotopes relevant to Nuclear Medicine with respect physical characteristics, production and uses. 10
5. Artifacts in SPECT and SPECT-CT. How will you avoid or minimize them? 10
6. Biological tests for Quality control of radiopharmaceuticals. 10
7. a) Ideal characteristics of radiopharmaceuticals. 5+5
b) AI breakthrough.
8. a) ^{68}Ga -labelled peptides. 5+5
b) Copper based radiopharmaceuticals.
9. a) Radiation Synovectomy- agents and procedure. 5+5
b) Renal infection imaging.
10. a) $^{99\text{m}}\text{Tc}$ - colloid. 5+5
b) $^{123}/^{131}\text{I}$ -MIBG.
