NUCLEAR MEDICINE

PAPER – I

NM/J/15/24/I

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.*

Write short notes on

1.	a) Bremsstrahlung. b) Isomeric transition.		5+5
2.	a) Enumerate the modes of radionuclide production. b) Enlist used radionuclide generators. c) Describe one of them in detail.		2+3+5
3.	a) Transient Vs secular equilibrium. b) PMT Vs photodiodes.		5+5
4.	a) Types of scintillation detectors and their applications. b) What are the various crystal scintillation detectors used in PET? Write their merits & demerits.		5+5
5.	a) Nyquist frequency. b) Types of low pass filters & their applications.		5+5
6.	Reconstruction algorithms used in cross sectional functional imaging with suitable diagrams.		5+5
7.	QC procedures for: a) Non Imaging devices used in Nuclear Medicine department. b) SPECT-CT.		5+5
8.	a) Acute radiation syndromes & their management. b) Genetic effects of radiation.		5+5
9.	a) Diamox Brain SPECT. b) Non-cardiac applications of 99m Tc sesta MIBI.		5+5
10.	Methods of radio labeling & factors affecting the integrity of the labeled compounds.		10

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