Write short notes on

1. a) Bremsstrahlung.  
b) Isomeric transition.  

2. a) Enumerate the modes of radionuclide production.  
b) Enlist used radionuclide generators.  
c) Describe one of them in detail.

3. a) Transient Vs secular equilibrium.  
b) PMT Vs photodiodes.

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. a) Nyquist frequency.  
b) Types of low pass filters & their applications.

6. Reconstruction algorithms used in cross sectional functional imaging with suitable diagrams.

7. QC procedures for:  
a) Non Imaging devices used in Nuclear Medicine department.  
b) SPECT-CT.

8. a) Acute radiation syndromes & their management.  
b) Genetic effects of radiation.

9. a) Diamox Brain SPECT.  
b) Non-cardiac applications of 99m Tc sesta MIBI.

10. Methods of radio labeling & factors affecting the integrity of the labeled compounds.