Write short notes on:

1. a) Filters in Nuclear Medicine and their applications.  
   b) Avalanche Photodiode Vs Silicon photodiodes.  
   5+5

2. a) Phase analysis.  
   b) Partial volume effect and its corrections.  
   5+5

3. a) Scintigraphic imaging of dementia.  
   b) O^{15} generator  
   5+5

4. a) Theragnostic and its future.  
   b) Importance of PET in drug development.  
   5+5

5. a) Importance of decay scheme  
   b) Decay scheme of 99mTc and Lu^{177}.  
   2+(4+4)

6. a) What do you mean by GMP?  
   b) Elaborate the guidelines pertaining to In-House production of Radio-pharmaceuticals.  
   5+5

7. Significance of isolation ward with effective disposal of excreta as per AERB norms.  
   10

8. a) 18F-Tau imaging  
   b) 18F-FET  
   5+5

9. a) Regulations pertaining to transport of radioactive material  
   b) Role of AERB and ICRP in Nuclear Medicine.  
   5+5

10. Genomics of thyroid cancer.  
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