Q.1 a) Discuss various positrons emitting radionuclide. (05)

b) Explain working of pulse height analyzer. (05)

c) What are various units of radiation exposure? (05)

d) Define half life of radionuclide and derive its expression. (05)

Q.2 a) What is the principle involved in Radioimmunoassay. Explain this technique along with its applications. (15)

b) Discuss radiotracers used in RIA along with their advantages and disadvantages. (05)

Q.3 a) With the help of detailed block diagram explain working of Gamma Camera. (10)

b) Discuss various quality control tests to be carried out to assess the performance of Gamma camera. (10)

Q.4 a) What is a principle of radiation safety? How it is achieved? (10)

b) Explain biological effects of radiation exposure. (10)

Q.5 a) Explain in detail principle and working of rectilinear scanner with the help of block diagram. (10)

b) With the help of detailed block diagram explain principle and working of Liquid scintillation counting system. (10)

Q.6 a) Explain the various ways by which gamma rays interact with matter. (10)

b) Enlist the various reconstruction techniques employed in SPECT. Explain any one in detail. (10)

Q.7 Write short notes on (any four) (20)

a) Gas filled detector

b) Alpha and Beta decay

c) Solid state detector

d) Isomeric transition

e) Disposal of Biological waste