Question Paper Code : 6407

M.Sc. (Semester-II) Examination, 2018

NUCLEAR MEDICINE

[First Paper]

(Radiation Detection & Measurement)

Time : Three Hours] **[Maximum Marks : 70**

Note : Answer **five** questions in all. Question **No.1** is **compulsory** and carries **30** marks. In addition attempt one question carrying **10** marks from each of the four Units.

1. Write short notes on the following:

   (a) Cutie pie

   (b) Geiger Mueller Counter

   (c) Inorganic Scintillation Detector

   (d) Dead Time

   (e) PMT

   (f) Gamma Ray Spectrometer

(g) Semiconductor Detector

(h) Liquid Scintillation Detector

(i) PHA

(j) Matrix Size

UNIT-I

2. What is a scintillation detector ? Describe its characteristics and applications in Nuclear Medicine.

3. What is contamination monitor ? Describe in detail its Principles and objectives.

UNIT-II

4. In gamma spectrometry, how is energy information stored in the nuclear electronics circuit when a nuclide deposits gamma on a NaI (TI) detector ?

5. What is semiconductor detector and their uses in nuclear medicine ?

UNIT-III

6. Describe the principles and applications of Liquid Scintillation counting.

7. Write short notes on the following :

(a) Amplifiers

(b) Digital Counters and Rate Meters

UNIT-IV

8. Describe various problems in detection and measurement in Nuclear Medicine and their solutions.

9. Describe the basic methods for characterizing and evaluating image quality.

----- x -----