

Roll No.

Total No. of Questions : 7]
(2034)

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UG (CBCS) IIIrd Year Annual Examination
3002

B.Sc. PHYSICS

(Radiation Safety)

(SEC-3)

Paper : PHYS 307 TH

Time : 3 Hours]

[Maximum Marks : 50

Note :- Attempt any *five* questions. All questions carry equal marks.

1. (a) Define Binding Energy of a Nucleus. Explain how the stability of a nucleus can be studied with the help of graph between the binding energy per nucleon and mass number.

(b) What is the basic cause of difference between continuous and characteristic X-rays ?

7,3

CH-302

(1)

Turn Over

2. What is Compton effect ? Derive an expression for change in wavelength when a gamma ray photon undergoes Compton scattering. 10
3. (a) Explain different natural and artificial sources of radiation in reference to exposure. 7,3
- (b) What is ALI ? Discuss its importance. 7,3
4. Describe the construction and working of GM counter. Explain, Dead time and Recovery time of a GM counter. 10
5. (a) What are Radiation Protection Standards? What is their need ?
- (b) What is ICRP and what are its functions ? 7,3
6. (a) Explain principle, construction and working of Positron Emission Tomography (PET).
- (b) What is Radiation Therapy ? 7,3
7. (a) (i) Derive the relation of energy equivalent to 1 a.m.u.

(ii) An X-ray tube operates at 80 kV. Find the maximum speed of the electron with which it strikes the target. 3,3

(b) How nuclear techniques are used in the detection of crimes ? 4