

[LJ 0816]

AUGUST 2016

Sub. Code: 2103

**B.Sc. NUCLEAR MEDICINE TECHNOLOGY
FIRST YEAR
PAPER III – BASIC PHYSICS AND NUCLEAR PHYSICS**

Q.P. Code: 802103

Time: Three Hours

Maximum: 100 Marks

Answer all questions

I. Elaborate on:

(3 x 10 = 30)

1. Describe in detail the mechanisms of radioactive decay.
2. What are the interactions of radiation with matter? Describe any two of them in detail.
3. Discuss in detail radioisotopes used in Nuclear Medicine with type of emission and application for each.

II. Write notes on:

(8 x 5 = 40)

1. Write the properties of electromagnetic radiation.
2. What will be the activity of a radioactive substance after 4 half-lives if the initial activity is 100 mCi?
3. Explain artificial radioactivity.
4. Define: Isotope, Isomer, Isobar and Isotone and give an example for each.
5. Electromagnetic induction.
6. Decay scheme of Tc-99m and Iodine-131.
7. Binding forces between nuclear particles.
8. Direct current and alternating current.

III. Short answers on:

(10 x 3 = 30)

1. Define the term "Radiation".
2. Voltmeter.
3. Joule's law.
4. Half-life.
5. Difference between X-rays and gamma rays.
6. Attenuation and absorption.
7. Photon.
8. Electron volt.
9. Luminescence.
10. Half Value Layer.
