[LN 0818] AUGUST 2018 **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. State the law of Radioactive disintegration. Derive the equation of radioactive decay.
2. What are the interactions of gamma radiation with matter? Describe any two of them with suitable examples.
3. Define: Isotope, Isobar, Isotone and Isomer. Give at least two examples for each.

II. Write notes on: **(8 x 5 = 40)**

1. Half-life and mean life of a radionuclide.
2. State and explain Inverse Square law.
3. Decay constant.
4. Beta Decay.
5. What will be the activity of a radioactive substance after 3 half-lives if the initial activity is 200 mCi?
6. Nuclear binding force.
7. Direct current and alternating current.
8. Natural and artificial radioactivity.

III. Short answers on: **(10 x 3 = 30)**

1. Electron Volt.
2. Nucleons.
3. Linear attenuation co-efficient.
4. Units of radiation exposure.
5. Units radioactivity.
6. Subatomic particles.
7. Half value layer.
8. Ideal shielding material for gamma radiation.
9. State Ohm’s law.
10. Capacitance.

****