

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0122]

JANUARY 2022

Sub. Code: 2122

(FEBRUARY 2021 & AUGUST 2021 EXAM SESSION)

**B.Sc. NUCLEAR MEDICINE TECHNOLOGY
THIRD YEAR – (Regulation from 2010-2011)
PAPER II – RADIATION BIOLOGY & RADIATION SAFETY IN NUCLEAR MEDICINE
Q.P. Code: 802122**

Time: Three Hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on:

(3 x 10 = 30)

1. Describe the various principles of reducing the radiation exposure to the body from external sources.
2. A nuclear medicine technologist accidentally dropped a vial containing high dose Radioactive Iodine (^{131}I) on the floor, when he was about to administer it to a patient in Chennai. How should a Radiological Safety Officer handle this situation?
3. What are the common types of Ionizing Radiation commonly used in medical field – for diagnosis and for treatment purposes. Describe in detail about shielding from gamma radiation.

II. Write notes on:

(8 x 5 = 40)

1. Equivalent Dose.
2. Linear Energy Transfer.
3. Internal Contamination.
4. Transport Index and TREM Card.
5. Radiation effect on foetus.
6. TLD Monitors.
7. Genetic Effects of Radiation.
8. Methods of Waste Disposal in Nuclear Medicine.

III. Short answers on:

(10 x 3 = 30)

1. ALARA Principle.
2. Carrier Free Radionuclide.
3. AERB.
4. Natural Sources of Radiation.
5. Tissue Weighting Factor.
6. Exposure to General Public and dose limit.
7. Stochastic Effects of Radiation.
8. Lead Apron.
9. Name of the syndromes associated with Acute Radiation Sickness.
10. Effective Half Life.
