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

[AHS 1123] **NOVEMBER 2023** **Sub. Code: 1938**

B.Sc. RADIOTHERAPY TECHNOLOGY
THIRD YEAR – (Regulations 2014-2015 & 2018-2019 onwards)
PAPER III – QUALITY ASSURANCE, RADIOBIOLOGY & RADIATION SAFETY IN RADIOTHERAPY
Q.P. Code: 801938

Time: Three Hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate on: **(3 x 10 = 30)**

1. Discuss in detail the various deterministic effects of ionising radiation on human being.
2. What are the permission and approvals need to be obtained from AERB during the installation and commissioning of Telecobalt unit from regulatory point of view?
3. Discuss the mechanical and radiation Quality Assurance tests procedures for Telecobalt unit.

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

1. ICRP recommendation on Radiation dose limits.
2. Explain the role of Gamma zone monitor for Telecobalt and Brachytherapy installations.
3. Narrate the steps to be taken by the Radiotherapy technologist during source struck up in Telecobalt unit.
4. Explain the factors influencing the thickness of secondary barrier.
5. Explain the theory of Gas filled detector.
6. Explain the working principle of Thermo Luminescence Dosimeter.
7. Explain the acceptance tests for Treatment planning system.
8. Explain the responsibility of Radiation Safety Officer in enforcing the regulatory requirement.

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

1. Type Approval of radiation generating equipment.
2. Free radicals.
3. Hyperthermia.
4. Tissue weighting factors.
5. Background radiation.
6. Pocket dosimeter.
7. Leakage radiation.
8. Air Kerma.
9. Radiation isocentre.
10. Chromosomal aberrations.

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