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

[AHS 1023] **OCTOBER 2023** **Sub. Code: 4034**

M.Sc. MEDICAL PHYSICS
SECOND YEAR (From 2020-2021 onwards)
PAPER IV – RADIATION SAFETY

Q.P. Code: 284034

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

I. Elaborate on: **(2 x 20 = 40)**

1. Shielding design of telecobalt teletherapy bunker with a model layout. Calculate the (a) barrier thicknesses of primary wall, (b) barrier thicknesses of secondary wall, (c) barrier thicknesses of Maze wall and (d) barrier width.

2. System and Principles of Radiological Protection based on the recommendations of the International Commission.

II. Write notes on: **(10 x 6 = 60)**

1. A Co-60 source of 10 Ci and Ir-192 source of 12 Ci are placed together in an unshielded container. What would be the exposure rate at 2 m?
2. Evaluation of external radiation hazards.
3. Area monitoring and Personnel monitoring.
4. Safe work practice in Radiotherapy.
5. General requirements for Type B package for the transport of radioactive material.
6. Radiation survey in brachytherapy unit.
7. Monitoring and control of surface contamination.
8. Natural and man-made sources of radiation exposure.
9. Responsibilities of Radiation Safety Officer (RSO) and Employer.
10. Various types of Packages used in transporting radioactive material.

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