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

**[AHS 0222]** **FEBRUARY 2022** **Sub. Code: 2402**
**(OCTOBER 2021 EXAM SESSION)**

**M.Sc. RADIOTHERAPHY TECHNOLOGY**
**FIRST YEAR**
**(Candidates admitted from 2019-2020 onwards – Paper II)**
**(Candidates admitted from 2020-2021 onwards – Paper III)**
**PAPER II & III – IMAGING MODALITIES, EQUIPMENT OPERATION SAFETY AND MAINTENANCE RELATED TO RADIOTHERAPY AND MEDICAL PHYSICS**
***Q.P. Code : 282402***

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

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

1. Explain different types of ion chambers with suitable diagrams.
2. What is workload, Occupancy and Use factor? Explain with suitable diagrams the barrier calculations of a 6MV linear accelerator.

**II. Write Short Notes on:** **(10x6 = 60)**

1. Explain the effect of voltage and current on the intensity of X – rays with suitable figures.
2. Write the occupational dose limits in detail.
3. What is shutter error? How will you measure and correct it?
4. Explain Somatic effects and hereditary effects.
5. Write the principles of Thermo Luminescence Dosimeters and their use in personnel monitoring badges with suitable diagrams
6. Write a notes on Telecobalt source and HDR brachytherapy source.
7. Compare stationary and rotating anode X-ray tubes
8. Define and explain exposure, kerma and absorbed dose and its relationship
9. What is primary standard? Explain in detail.
10. Explain with suitable diagram free air chamber.

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