

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

[AHS 0222]

**FEBRUARY 2022
(OCTOBER 2021 EXAM SESSION)**

Sub. Code: 4015

**M.Sc. MEDICAL PHYSICS
FIRST YEAR**

(Candidates admitted from 2010-2011 onwards – Paper V)

(Candidates admitted from 2020-2021 onwards – Paper VI)

PAPER V & VI – RADIATION DETECTORS AND INSTRUMENTATION

Q.P. Code : 284015

Time: Three hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate notes on:

(2 x 20 = 40)

1. Explain in detail about the variation of the charge collection with operating voltage in a gas filled radiation detector using a trend graphically and write various regions of gas filled operation.
2. Describe the construction of Radiation Field Analyzer and its applications

II. Write Short Notes on:

(10x6 = 60)

1. MOSFET
2. Explain the quenching mechanism of organic quenched GM detectors.
3. Semiconductor detector and its advantages and disadvantages
4. Well type ion chamber and its application in Brachy-therapy
5. Contamination monitor
6. AC-DC convertor
7. Radio immunoassay (RIA)
8. Thimble chamber
9. Solid State Nuclear track detectors
10. Calibration and maintenance of dosimeter
