

[LD 1013]

OCTOBER 2013

Sub. Code: 4015

M.Sc (MEDICAL PHYSICS) DEGREE EXAMINATION
(Revised Regulations for Candidates admitted from 2010-2011)

FIRST YEAR

PAPER V – RADIATION DETECTORS AND INSTRUMENTATION

Q.P. Code : 284015

Time : 3 hours

Maximum : 100 marks

Answer ALL questions

I. Elaborate on :

(2X20=40)

1. (a) How the charge collection varies with operating voltage in a gas filled radiation detector using a trend graphically and write various regions of gas filled operation
(b) The important properties of ideal scintillation material
2. (a) Draw the block diagram of typical scintillation detector based radiation measuring system and explain briefly the function of each block
(b) Explain the quenching mechanism of organic quenched GM detectors

II. Write notes on:

(10X6=60)

1. Single and multi channel Analyzer
2. OSL and MOSFET dosimetry
3. Characteristics of operational amplifiers
4. Construction and working of thimble chamber
5. Dead time and recovery time
6. The properties of ideal semiconductor detector material
7. Characteristics of organic and inorganic counters
8. RIA counter
9. Teletector and contamination monitor
10. Radioisotope calibrator
