QP Code: 106391 **Reg. No.....**

Post M.Sc Diploma in Radiological Physics Regular/Supplementary Examinations October 2024

Radiation Detectors and Instrumentation

Time: 3 hours **Max. Marks: 100**

- ***Answer all questions to the point neatly and legibly • Do not leave any blank pages between answers • Indicate the question number correctly for the answer in the margin space***
- ***Answer all parts of a single question together • Leave sufficient space between answers***
- ***Use of Calculators/physical and mathematical tables permitted*.**

Essay: **(2x14=28)**

1. How a Secondary Standard Dosimeter(SSD) is used for measuring point dose in water phantom. What is the function of RFA
2. What are three main types of Detectors.
   Explain in details the functioning of the following
   (a) SSNTD (b) TLD (c) Isotope calibrator

Short Essays **(4x8=32)**

3. Describe Pocket Dosimeter. How it is used to measure radiation
4. Liquid scintillators
5. Explain RIA counter
6. Different type of quenching in detectors

Short Notes **(10x4=40)**

7. Solid State detectors.
8. Small field detectors
9. BF3 in neutron detector
10. Electron trap in TLD material and Scintillators
11. Gamma zone monitor
12. Contamination monitor
13. Stem effect
14. Dead time in dosimetry
15. Principles of Proportional Counter
16. Multichannel analyser

****