M.Sc. MEDICAL PHYSICS
FIRST YEAR
(Candidates admitted from 2010-2011 onwards – Paper II)
(Candidates admitted from 2020-2021 onwards – Paper III)
PAPER II & III – RADIOLOGICAL MATHEMATICS
Q.P. Code : 284012

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

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

1. a) Find the Pearson's correlation coefficient between SBP and DBP.

SBP(mmHg) X	70	80	100	110	75	85	90
DBP(mmHg) Y	100	110	120	130	125	135	115

   b) Sensitivity, Accuracy and Precision

2. a) Discuss precautions for applying chi square distribution.
   b) Define sampling and Probability sampling methods.

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

1. Define Linear and Non linear graphs
2. Oscillation and waves.
3. Detective efficiency, Geometrical efficiency, Intrinsic efficiency.
4. Decay constant and Branding ratio.
5. Central limit theorem.
6. Newton-Rapson method.
7. Define Signal to noise ratio.
8. Three orders of Runga-kutta method.
9. Solve $y' + y = e^{x}$, $y_o = 0$ by using Picard's method.
10. Evaluate $\int_0^1 \frac{1}{1+x^2}$ by using 1) Trapezoidal rule 2) Simpson's 1/3 rule.

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