

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

[AHS 0921]

SEPTEMBER 2021
(MAY 2021 EXAM SESSION)

Sub. Code: 4012

M.Sc. MEDICAL PHYSICS
FIRST YEAR (From 2010-2011 onwards)
PAPER II – 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 Coefficient of Correlation for the following data

HDL cholesterol mg/dl (X)	90	100	80	70	110	60	120
LDL cholesterol mg/dl (Y)	20	25	12	9	30	8	50

- b) Uses of Correlation.

1. a) Difference between Binomial distribution and Poison distribution.
b) Properties of Chi-square test and F-test.

II. Write Short Notes on:

(10x6 = 60)

- Boole rule and Weddle rule.
- Modified Euler's formula.
- Random noise, Structured noise, Statistical noise.
- Parametric and Non parametric correlation.
- Law of Large Numbers.
- Evaluate $\int_0^1 \frac{1}{1+x^2}$ by using Simpson's 3/8 rule. Hence obtain the approximate π , by dividing the range into six equal parts.
- Using Taylor's method find $y(0,1)$ correct to three decimal places from $\frac{dy}{dx} + 2xy = 0$ with $y_0 = 0$.
- Line symmetry and Mirror symmetry.
- Presentation of data.
- Find the mean median and mode for following data.
Uric acid (mm/dl) 3, 9, 6, 11, 15, 8 and 7.
