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

[AHS 1023]   **OCTOBER 2023**   **Sub. Code: 2863**

M.Sc. BIOSTATISTICS
FIRST YEAR (From 2011-2012 onwards)
PAPER III – STATISTICAL INFERENCE, SAMPLING METHODS AND SAMPLE SIZE

Q.P. Code: 282863

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

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

1. a) Derive Kolmogorov Smirnov Test.
    b) Describe method of estimating a 95 % of confidence Interval for the variance σ^2 if a sample of size n is taken when the mean is i) known and ii) unknown.

2. a) Estimation of variance of simple random sampling without replacement.
    b) In the usual notations prove that $V_{st} \leq V_{sys} \leq V_{srs}$.

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

1. Explain correlation and regression with example.
2. Show that most powerful test obtained by Neyman Pearson lemma is unbiased.
3. Properties of point estimators.
4. What is a best linear unbiased estimator?
5. Give example for Cramer Rao inequality, when the underlying regularity conditions are violated?
6. Explain Sequential Probability Ratio test.
7. Cluster sampling.
8. Quota sampling for proportions.
9. Double sampling for ratio estimator.
10. Multistage Sampling.

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