[LL 1017] OCTOBER 2017 **Sub. Code: 2863**

M.Sc. BIOSTATISTICS EXAMS
FIRST YEAR
PAPER III – STATISTICAL INFERENCE, SAMPLING METHODS AND SAMPLE SIZE

Q.P. Code: 282863

Time: Three hours **Maximum: 100 Marks**

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

1. a) Show that the sample mean x_{mean} in random sampling from
   $f(x,\theta)= (1/\theta)\exp(-(x/\theta)),\ 0<x<\infty,$
   0 otherwise,
   when $0<\theta<\infty$, is an MLE estimator of θ and has variance θ^2/n
   b) Cramer Rao inequality, Bhatacharya inequality and Rao-blackwell inequality.

2. a) Methods of drawing SRS.
   b) Multiphase and multistage sampling.

II. Write notes on: **(10 x 6 = 60)**

1. Confidence interval for difference of two sample proportions.
2. Method of modified minimum chi-square.
3. Neymen Pearson test of hypothesis.
4. Test based on F-distribution.
5. Mann-Whitney test.
6. Parameter, statistic and sampling distribution.
7. Estimation of mean and variance of SRSWOR.
8. Quota sampling for proportions.
9. Non-sampling errors.
10. Interpenetrating sub sampling.

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