

- 1 What is Analysis of variance?
- 2 State variability “within” and variability “between”.
- 3 Give Introduction, assumptions and notations for One way classification.
- 4 Give statistical analysis of One way classification.
- 5 Derive expected values of sum of squares of One Way Classification.
- 6 Give Introduction, assumptions and notations for Two way classification.
- 7 Give statistical analysis of Two way classification.
- 8 Derive expected values of sum of squares of Two Way Classification.
- 9 Explain importance of Estimation.
- 10 What is Point Estimation? With reference to point estimation, define Statistic and Estimator.
- 11 State properties of an estimator to be good estimator.
- 12 What do you mean by unbiasedness?
- 13 Write a note on efficient estimator and efficiency.
- 14 Describe sufficiency, in detail.
- 15 If a random sample of size n is taken from a normal distribution with parameters μ and σ^2 (where μ is known) then prove that sample variance is unbiased estimator of σ^2 .
- 16 If a random sample is taken from a Poisson distribution with parameter m , then show that $\sum X_i$ is sufficient estimator of parameter m .
- 17 If a random sample of size three was drawn from the Bernoulli Distribution with mean θ , find the efficiency of $\frac{3x_1+2x_2+x_3}{6}$, with respect to the sample mean, \bar{X}
- 18 Show that an estimator $t = \bar{x}$ defined on a random sample of size n from $N(\mu, 16)$ is unbiased as well as consistent for μ .
- 20 Show that sample mean defined on a random sample of size n from a Exponential Distribution with parameter λ is unbiased for λ .

21 Show that an estimator $t = \sum x_i$ defined on a random sample of size n from $N(\mu, 1)$

is consistent as well as sufficient for μ .

22 If a random sample of size n is taken from a normal distribution with parameters μ

and σ^2 (where μ is known) then prove that sample variance defined as under is

$$S^2 = \frac{\sum(x_i - \bar{x})^2}{n-1} \text{ is sufficient estimator of } \sigma^2.$$