

APPENDIX IITEST OF SIGNIFICANCE FOR THE DIFFERENCE
OF MEANS OF MORE THAN TWO SAMPLES.

One of the most powerful tools of statistical analysis is the "Analysis of variance". The t-test is an adequate procedure when we have means of only two samples to consider. However, in a situation where we have three or more samples to consider at a time, the technique of analysis of variance (F-test) is most adequate.¹ Hence, we adopted "Analysis of Variance."

The Avona table for "Analysis of Variance" are given in table 5.4 and 5.7 of Chapter V. The formula used in the "Analysis of Variance" is given below.

$$\text{Total S.S.} = \sum_j \sum_j x_{ij}^2 - \frac{G^2}{N}$$

where $\sum \sum x_{ij}^2$ = Sum of the squares of all the observations.

G = Grand total of all the observations.

N = Total number of observations.

Error S.S. = Total S.S. - (Pland S.S. + Part S.S.)

M.S.S. = S.S. \div d.f.

$$\text{Variance ratio} = \frac{\text{mean S.S.}}{\text{Error mean S.S.}}$$

The formula used for C.D. calculation for table 5.3 and 5.5 of Chapter V is

C.D. for the difference of means $\sqrt{\frac{2}{n} \times \text{Error M.S.S.} \times t_{\alpha/2}^2}$ for Error D.F.

REFERENCE

1. Gupta, S.P. (ed. 1984) Statistical Methods. Published by Sultan Chand and Sons, 23, Daryaganj, New Delhi - 110 002.