



## DEPARTMENT OF MATHEMATICS

### UNIT – II DESIGN OF EXPERIMENTS

#### ANALYSIS OF VARIANCE (ANOVA):

ANOVA is a technique that will enable us to test the significance of the difference among more than two sample mean.

#### ASSUMPTION:

- 1) The observations are random.
- 2) The observations are independent.
- 3) The samples are drawn from normal populations.
- 4) Population variances are equal.

#### BASIC PRINCIPLES:

- 1) Randomisation
- 2) Replication
- 3) Local control.

#### BASIC DESIGN:

- \* Completely randomised design (CRD) One-way classification
- \* Randomised Block design (RBD) Two-way classification
- \* Latin Square design (LSD) Three-way classification
- \* Two square Factorial design

Hint :- F-Ratio :  $F = \frac{S_1^2}{S_2^2}$  where  $S_1^2 > S_2^2$



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procedure to find :-

- 2) Sum of all the terms ( $T$ ) & Total no. of Sample size ( $N$ )
- 3) Correction factor ( $C.F$ ),  $C.F = \frac{T^2}{N}$
- 4) TSS : Total sum of squares  
 $= (\text{sum of the squares of all the terms}) - C.F.$
- 5) SSC : Sum of squares between samples
- 6) SSE : Error sum of squares  
 $= TSS - SSC$
- 7) Anova table
- 8) Conclusion :
- 9) Formulating  $H_0$  &  $H_1$