

Randomised Block Design (R.B.D)

It is a two factor experiment.

Steps:

- 1) Null Hypothesis: H_0 : There is no significant difference b/w columns and rows.
- 2) Alternative Hypothesis: H_1 : There is a significant difference b/w columns and rows.

3) Find N , r and c

4) Find $T = \sum X_1 + \sum X_2 + \sum X_3$

5) find $CF = \frac{T^2}{N}$

6) Find $SST = \sum X_1^2 + \sum X_2^2 + \dots - CF$

7) Find $SSC = \frac{(\sum X_1)^2}{c_1} + \frac{(\sum X_2)^2}{c_2} + \dots - CF$

8) Find $SSR = \frac{(\sum Y_1)^2}{r_1} + \frac{(\sum Y_2)^2}{r_2} + \dots - CF$

9) Find $SSE = SST - SSC - SSR$

10) ANOVA TABLE

Source of Variation	Dof	Sum of Squares	Mean Sum of Squares	Variance Ratio F_{cal}	Table Value F_{tab}
B/w columns	$c-1$	SSC	$MSC = \frac{SSC}{c-1}$	F_C	F_{Ctab}
B/w rows	$r-1$	SSR	$MSR = \frac{SSR}{r-1}$	$= \frac{MSC}{MSE}$ (or)	$(c-1)(r-1)$
B/w errors	$(c-1)(r-1)$	SSE	$MSE = \frac{SSE}{(c-1)(r-1)}$	$F_R = \frac{MSR}{MSE}$	F_{Rtab} $(r-1, (c-1)(r-1))$

11) Conclusion:

(i) $F_C < F_{Ctab}$, we accept H_0 | $F_C > F_{Ctab}$, we reject H_0

(ii) $F_R < F_{Rtab}$, we accept H_0 | $F_R > F_{Rtab}$, we reject H_0