Topic: 2.5 – One-way classifications - Completely randomized design

2). A completely radomised design experiment with 10 plots and 3 treatments gave the following results.

Plot No:	1	2	3	4	5	6	7	8	9	10
Treatment:	A	B	C	A	C	C	A	B	A	B
Yield:	5	4	3	7	5	1	3	4	1	7

10 H_0: There is no significant difference

H_1: There is significant difference.

X_1	X_2	X_3	T	X_1^2	X_2^2	X_3^2
5	4	3	12	25	16	9
7	4	5	16	49	16	25
3	7	1	11	9	49	1
1			1	1		
16	15	9	40		81	35

$N = 10$

$T = 40$

$\frac{T^2}{N} = \frac{(40)^2}{10} = 160$

$TSS = \Sigma x_1^2 + \Sigma x_2^2 + \Sigma x_3^2 - \frac{T^2}{N}$

$= 84 + 81 + 35 - 160 = 40$

$SSC = \frac{(\Sigma x_1^2)}{N_1} + \frac{(\Sigma x_2)^2}{N_1} + \frac{(\Sigma x_3)^2}{N_1} - \frac{T^2}{N}$

$= \frac{(16)^2}{4} + \frac{(15)^2}{3} + \frac{(9)^2}{3} - 160$

$= 6$

$SSE = TSS - SSC$

$= 34$

Source of variation	Sum of Squares	dof	Mean Sum of Squares	Variance Ratio
Bt columns	SSC = 6	C − 1 = 2	MSC = SSC/(C−1) = 3	$F_C = \frac{MSC}{MSE}$ = 1.62
Error	SSE = 34	N − C = 7	MSE = SSE/(N−C) = 4.86	

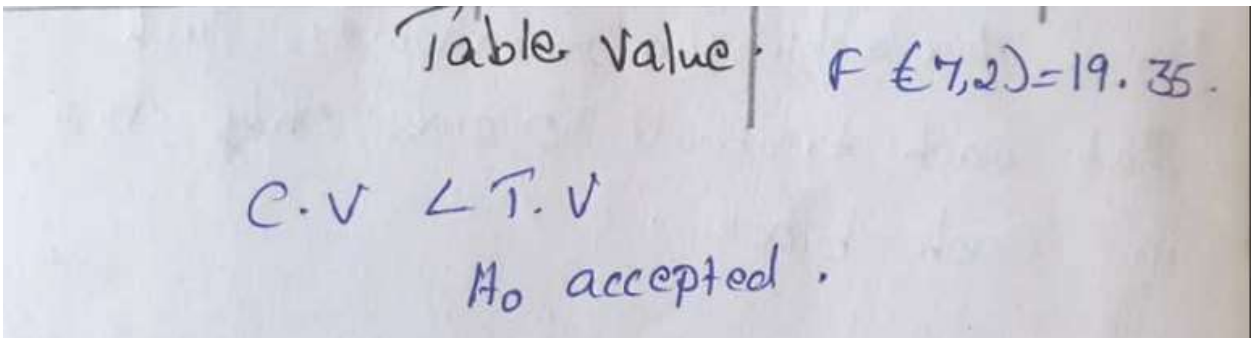
Table value
F (7,2) = 19.35.
C.V < T.V
Ho accepted.