Group 7 - FA 13

a) Model equation with fixed effects:

$$y_{ijk} = \mu + \tau_i + \beta_j + (\tau\beta)_{ij} + \epsilon_{ijk} \quad \begin{cases} i = 1, 2, \ldots, a \\ j = 1, 2, \ldots, b \\ k = 1, 2, \ldots, n \end{cases}$$

τ = Doping effect $i = 1, 2$
β = Temperature effect $j = 1, 2, 3$

b) Two repetition, $K = 2$

c)

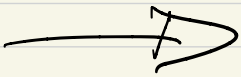
SOURCE	D.F.	S.S.	M.S.	F value	P-Value
Temperature	2	111.19	55.59	865.16	4.13E-08
Doping	1	0.98	0.98	15.26	0.00793
Temperature : Doping	2	0.58	0.29	4.48	0.06450
Residuals	6	0.39	0.06		
TOTAL	11				

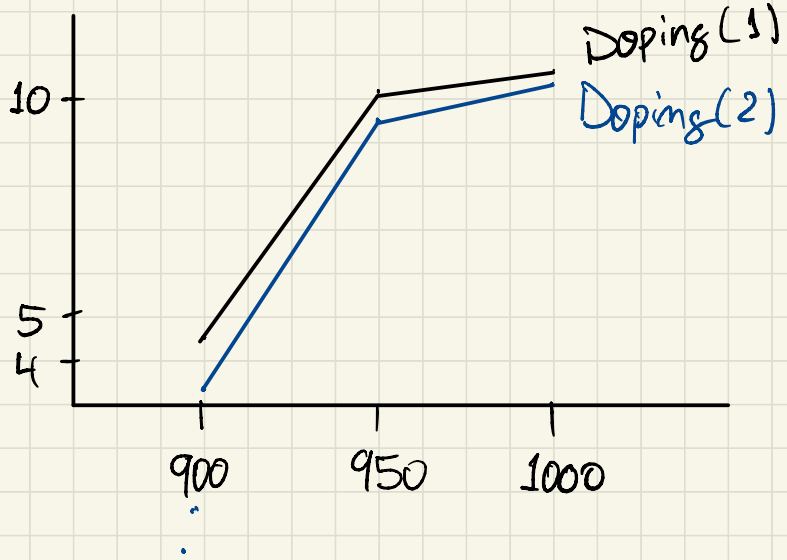
d) $H_0 : \tau\beta_{ij} = 0 \quad \forall ij$

$H_a : \tau\beta_{ij} \neq 0$ some ij

∴ Since the interaction P-value (0.06450) is lower than α (0.10), we reject the null hypotheses.

e)




Doping (1)
Doping (2)
10
5
4
900
950
1000