DISCUSSION 5

-Two - way ANOVA

-Exercies:

1. Question 1

4. Analyze the data shown below obtained at the start of a process. It was known at the time that the process was very unstable. Nevertheless, it was important to compare four variations A, B, C, D of process conditions. The variants A, B, C, D were employed in 32 consecutive runs with results as follows:

Runs	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Variant	*C*	*B*	*D*	*A*	*B*	*D*	*A*	*C*	*D*	*A*	*B*	*C*	*A*	*D*	*C*	*B*
Result	56	60	69	61	62	70	65	65	66	63	52	57	58	60	61	66

Runs	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Variant	*A*	*D*	*B*	*C*	*D*	*C*	*A*	*B*	*B*	*D*	*C*	*A*	*C*	*D*	*A*	*B*
Result	56	61	53	52	62	57	59	58	60	68	61	65	63	68	61	55

(a) Plot the data. What kind of an experimental design is this?

(b) Make an ANOVA and a graphical ANOVA.

(c) Estimate the mean, with confidence interval, for the four possible process conditions.

(d) Plot the residuals in time order.

(e) Plot the eight averages of the sets of fours runs in time order and comment.

2. Some questions on the exam or Others.