MTH 441A: Lab 12

P 1. Testing new fertilizers in different types of crops (rice, wheat, and corn). Crops are divided into 3 different types of fertilizers that are used on those crops. The response is the months the crops were healthy (given in Table 1).

Table 1: Crop experiment

	Crop		
Fertilizer	Corn	Rice	Wheat
F1	6	4	6
F2	5	4.2	5
F3	6	5	5.5

Perform the analysis of variance to test the equality of all three items.

P 2. A fast food franchise is test marketing 3 new menu items. To find out if they have the same popularity, 6 franchisee restaurants are randomly chosen for participation in the study. In accordance with the randomized block design, each restaurant will be test marketing all 3 new menu items. The data in Table 2 represents the sales figures of the 3 new menu is given in different restaurants.

Table 2: Restaurant experiment

	Item		
Restaurant	Item1	Item2	Item3
R1	31	27	24
R2	31	28	31
R3	45	29	46
R4	21	18	48
R5	42	36	46
R6	32	17	40

Perform the analysis of variance to test the equality of all three items.

P 3. Suppose you want to analyse the productivity of 5 kind on fertilizer, 5 kind of tillage, and 5 kind of seed (A,B,C,D,E). The numbers are the productivity in cwt / year. The following LSD is used:

Table 3: Restaurant experiment

	Tillage				
Fertilizer	till1	till2	till3	till4	till5
fertilizer1	A	C	B	D	E
fertilizer2	E	B	C	A	D
fertilizer3	C	A	D	E	B
fertilizer4	B	D	E	C	A
fertilizer5	D	E	A	B	C

The data are organized in a latin square design, as follow:

Table 4: Restaurant experiment

	Tillage				
Fertilizer	treat1	treat2	treat3	treat4	treat5
fertilizer1	42	47	55	51	44
fertilizer2	45	54	52	44	50
fertilizer3	41	46	57	47	48
fertilizer4	56	52	49	50	43
fertilizer5	47	49	45	54	46

Perform the analysis of variance to test the equality of all five seed categories.