Agronomy 526 Homework

Due: 3/3/22

1. The following data are from an experiment in which six types of sorghum (Grain, Sudangrass, Sorghum x Sudan, Forage, Sweet, and Tropical) were evaluated for their nitrogen uptake potential. Three varieties of each of the types were grown at a municipal waste disposal site that was heavily loaded with nitrogen. The values represent kg nitrogen removed per ha.

Treatment		**Replication**			
Type	**Variety**	1	2	3	4
1	1	236.6	219.3	241.7	188.9
1	2	220.7	183.2	146.0	163.9
1	3	195.0	187.6	180.2	199.3
2	1	192.2	133.6	243.3	177.5
2	2	138.2	243.7	122.6	98.4
2	3	176.5	179.8	166.2	113.0
3	1	203.6	170.0	412.4	209.2
3	2	168.1	213.1	181.4	236.9
3	3	242.0	132.1	232.3	293.6
4	1	119.9	152.8	128.9	159.6
4	2	194.9	303.4	168.1	223.4
4	3	366.9	88.2	345.0	271.6
5	1	176.3	158.4	194.3	163.8
5	2	178.6	195.3	127.5	109.2
5	3	270.6	137.3	299.4	298.0
6	1	167.5	291.0	228.8	380.4
6	2	170.0	310.6	341.1	518.4
6	3	229.6	264.9	249.2	217.6

Assuming type is fixed and variety is random:

a. Write the linear additive model and expected mean squares for the experiment.
b. Perform the analysis of variance
c. Interpret the results

Assuming type and variety are both fixed factors:

d. Write the linear additive model and expected mean squares for the experiment
e. Perform the analysis of variance and calculate treatment means
f. Interpret the results

* turn in your SAS program as well as output