Math 343 - Lab 5

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Question 1

a)

To estimate value of $(\tau\beta)_{22}$, first must observe that $\bar{y}_{22\cdot} = \frac{100+85.9}{2} = 92.95$. $\bar{y}_{2\cdot\cdot} = 85.9$. $\bar{y}_{\cdot 2\cdot} = 100$. $\bar{y}_{\cdots} = \frac{100+79.2+85.9+83.9}{4} = 87.25$.

Therfore: $\hat{(\tau\beta)}_{22} = 92.95 - 85.9 - 100 + 87.25 = -5.7$

b)

First we note the following:
$\hat{\mu}_{11} = 83.9$
$\hat{\mu}_{12} = 85.9$
$\hat{\mu}_{22} = 100$
$\hat{\mu}_{21} = 79.2$
The main effect of source of protien (A) is:
$\frac{79.2+100}{2} - \frac{83.9+85.9}{2} = 4.7$

The main effect of amount of protien (B) is:
$\frac{85.9+100}{2} - \frac{83.9+100}{2} = 1$

The interaction effect of the two sources is:
$\frac{100+83.9}{2} - \frac{79.2+85.9}{2} = 9.4$

c)

Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Source	1	220.9	220.9	0.99	0.327
Amount	1	1299.6	1299.6	5.81	0.021
Source*Amount	1	883.6	883.6	3.95	0.054
Error	36	8049.4	223.6		
Total	39	10453.5			

Figure 1: The ANOVA table from Minitab.

d)

i.

ii.

iii.

iv.

e)

Question 2

a)

b)