Name Jenny

Student Number

STA 442/2101 f2016 Quiz 10

1. (~~6~~ 10 points) For **bunnies** data, the purpose of doing the study was to find out whether the drug worked as intended. So the main question is this: *Averaging across time, did the drug help the teeth become more firmly attached to the bone?*

4 marks All must be correct

(a) Write the value of the F statistic in the space below. **On your printout, circle the number and write "Test statistic for Question 1" beside it.**

$F = 11.0417$

(b) Write the p-value in the space below. The answer is a number from your printout.

$p = 0.002239$

(c) Do you reject the null hypothesis at $\alpha = 0.05$? Answer Yes or No.

Yes

6 marks

(d) In plain, non-statistical language, answer the question: *Averaging across time, did the drug help the teeth become more firmly attached to the bone?* You must draw a directional conclusion if a directional conclusion is possible. This part is worth 4 marks out of 6, and parts (a-c) together are worth 2 marks.

No! More force was required on average to remove the teeth with the placebo, so the drug caused teeth to be LESS firmly attached to bone.

2. (4 points) In the power analysis question on the rotten potato study, you were given six true expected values and a true σ^2. With these parameter values and equal sample sizes,

(a) What is the power to detect the interaction of temperature and bacteria type for a total $n = 54$? Write the number in the space below. **On your printout, circle the number and write "Question 2a" beside it.**

power = 0.0635

(b) What minimum total sample size is required so that the test of the interaction will have a power of at least 0.8? Write the number in the space below. **On your printout, circle the number and write "Question 2b" beside it.**

$n = 2,778$

Please don't mark this one. I accidentally told the class not to do the homework problem.