Quiz Practice Questions 5 for Statistics 503
Statistical Methods in Biology - Fall 2000
Material Covered: Chapter 8 (except 8.9) Rao and Kuhn
For: Wednesday, 1st November

This is a 15 minute quiz, worth 5% and marked out of 5 points. The total possible points awarded for each question is given in square brackets at the beginning of each question.

Name (please print): _____ . **ID Number:** _____.
last first

The number of minutes of consecutive sleep is recorded for fifteen different patients subjected to three drugs.

drug 1	drug 2	drug 3
24	26	24
26	30	24
25	35	32
25	40	33
30	45	43

Test if at least two of the three average patient responses to the drug are different at $\alpha = 0.05$.

(a) [1] The statement of the test is (check none, one or more):

(i) $H_0 : \mu_1 = \mu_2 = \mu_3$ versus $H_1 :\ \mu_1 \neq \mu_2, \mu_1 = \mu_3$.

(ii) $H_0 : \mu_1 = \mu_2 = \mu_3$ versus $H_1 :\ \mu_1 \neq \mu_3, \mu_1 \neq \mu_2$.

(iii) $H_0 : \mu_1 = \mu_2 = \mu_3$ versus
$H_1 :$ at least one $\mu_i \neq \mu_j, i \neq j;\ i, j = 1, 2, 3$.

(iv) H_0 : means the same versus H_1 : means different

(b) [2] Complete the ANOVA table,

Source	Sum Of Squares	Degrees of Freedom	Mean Squares
Between Groups			
Within Groups			
Total			

(c) [1] The test statistic is (circle one) **1.02** / **2.56** / **3.42** / **4.35** / **5.21**
and the upper critical value is (circle one) **3.22** / **3.89** / **4.82** / **5.76** / **7.29**

(d) [1] We (circle one) **accept** / **reject** the null hypothesis that the average patient responses to the three drugs are the same.

(a) (iii), (iv)

(b) Complete the ANOVA table,

Source	Sum Of Squares	Degrees of Freedom	Mean Squares
Between	212.8	2	106.4
Within	499.6	12	41.63
Total	712.4	14	

(c) **2.56**, **3.89**

(d) **accept**