

Quiz Questions 7 for Statistics 503
Statistical Methods in Biology - Fall 2000
Material Covered: Sections 10.6, 10.7, 10.8 Rao, 10.4–10.7 Kuhn
For: Wednesday, 29th 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 a drug, given at three dosage levels (10, 20 and 30).

10	20	30
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) [2] Complete the following table at $x = 15$, $m = 2$, $k = 3$ and $\alpha = 0.01$.

Bonferroni CI	_____	_____
Working–Hotelling CI	_____	_____
Bonferroni PI	_____	_____
Working–Hotelling PI	_____	_____

(b) [1] The 99% Bonferroni confidence interval is (circle one) **narrower** / **wider** than the Working–Hotelling confidence interval because although both are simultaneous, Working–Hotelling accounts for (circle one) **one** / **two** / **three** / **more than three** x values.

(c) [1] A q–q plot tells us the data is (circle one) **heavy tailed** / **light tailed** / **normal** / **left skewed** / **right skewed**.

(d) [1] The $e \vee \hat{y}$ plot for this data indicates: (circle one)
 $\sigma^2 = k\mu(1 - \mu)$ / $\sigma^2 = k\mu$ / $\sigma^2 = k\mu^2$ / $\sigma^2 = k\mu^{-2}$.

(a) [2] Complete the following table at $x = 15$, $m = 2$, $k = 3$ and $\alpha = 0.01$.

Bonferroni CI	21.86	37.14
Working–Hotelling CI	21.69	37.31
Bonferroni PI	10.09	48.91
Working–Hotelling PI	9.67	49.33

(b) [1] **narrower, one** (where as WH accounts for an infinity of x values)

(c) [1] **normal**

(d) [1] **$\sigma^2 = k\mu$**