Quiz # 2 Stat 212-02

NAME: ID #: Serial #:

The use of preservatives by food processors has become a controversial issue. Suppose 2 preservatives are extensively tested and determined safe for use in meats. A processor wants to compare the preservatives for their effects on retarding spoilage. Suppose 15 cuts of fresh meat are treated with preservative I and 12 are treated with preservative II, and the number of hours until spoilage begins is recorded for each of the 30 cuts of meat. The results are summarized in the table below.

Preservative I	Preservative II
$\bar{X}_{I}$ = 106.4 hours	$\bar{X}_{II}$ = 96.54 hours
S_{I} = 10.3 hours	S_{II} = 13.4 hours

(Assume alpha = 0.01).

a. Write the null and alternative hypotheses to test the hypotheses that the population mean for preservative I is at least 5 hours more than preservative II.

b. What is the pooled variance to test the hypotheses in part (a). Assuming equal population variances.

c. What is the rejection region for the test in part (b).

d. What is the test statistic value to test the hypotheses that the population means differ for preservatives I and II. Assuming unequal population variances.

e. Test the hypotheses that the population variances differ for preservatives I and II following the steps below:

(i). Hypotheses: H_0: Vs H_1:

(ii). Assumption(s):

(iii). Test Statistic:

(iv). Decision Rule:

(v). Critical Value(s):

(vii). Decision:

(viii). Conclusion