Elementary Statistics	Name:
Extra Credit 4	Class:
Due Date:	Score:

Your work must be very similar to my notes, lectures, or videos.

Be Neat, Organized, and No Work  $\Leftrightarrow$  No Points

1. A mathematics assessment test was given to students in two local high schools. The table below shows the results from independent samples taken from these two high schools.

	High School A							Н	igh	Sc	hoo	l B	
67 69 84	86 75 71	70 98		72 80					78 70 75	74			100 73

Table 1: Mathematics Assessment Results

(a) (6 points) Correctly choose which high school becomes sample 1 such that  $S_1 > S_2$ , then complete the following table. Round your answers to one-decimal place.

Sample 1(High School)	Sample 2(High School)
$n_1 =$	$n_2 =$
$\bar{x}_1 =$	$\bar{x}_2 =$
$s_1 =$	$s_2 =$

Table 2:Summarized Math Results

Test whether two population standard deviations between the two high schools are equal or not at  $\alpha = 0.02$  by using the data in table 2.

(b) (3 points) Clearly state  $H_0$ ,  $H_1$ , identify the type of test.

H<sub>0</sub>:\_\_\_\_\_\_

(c) (2 points) Find the computed test statistic and the P-value. Name the TI command used.

C.T.S. : \_\_\_\_\_

P-Value : \_\_\_\_\_

(d) (3 points) Based on your conclusion, when working with two population means, would you consider YES or NO option for pooling? Explain your reasoning.

(d) \_\_\_\_\_

(e) (3 points) Construct a 95% confidence interval for the difference between two population means  $\mu_1 - \mu_2$  of mathematics assessment results for all students using data in table 2.

Round your answers to one-decimal place. Name the TI command used.

(e) \_\_\_\_\_

(f) (2 points) Compute the margin of error.

(f) \_\_\_\_\_

Use  $\alpha = 0.02$  by referring to the data in table 2 to test a claim that the mean mathematics assessment results of all students in high school A is less than the mean mathematics assessment results of all students in high school B.

(g) (3 points) Clearly state  $H_0$ ,  $H_1$ , identify the claim and type of test.

H<sub>0</sub>:\_\_\_\_\_

(h) (3 points) Find all related critical values, draw the distribution, clearly mark and shade the critical region(s).

(i) (2 points) Find the computed test statistic and the P-value.

C.T.S. : \_\_\_\_\_ P-Value : \_\_\_\_\_

(j) (2 points) Use non-statistical terminology to state your final conclusion about the claim.

(j) \_\_\_\_\_

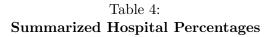
2. The table below shows the percentage of respondents taken from independent samples of two different hospitals in southern California, which reported their nurses always communicated well.

	Hospital A								Ho	spita	al B		
50	66	70	70	72	73	63	72	75	78	73	68	71	75
69	65	68	65	90			80	77	75	73	70	74	85

## Table 3:Communication Skills By Nurses

(a) (3 points) Correctly choose which hospital becomes sample 1 such that  $S_1 > S_2$ , then complete the following table. Round your answers to whole numbers.

Sample 1(Hospital)	Sample 2(Hospital)
$n_1 =$	$n_2 =$
$\bar{x}_1 =$	$\bar{x}_2 =$
$s_1 =$	$s_2 =$



Test whether two population standard deviations between the two hospitals are equal or not at  $\alpha = 0.02$  by using the data in table 4.

(b) (2 points) Clearly state  $H_0$ ,  $H_1$ , identify the type of test.

- *H*<sub>0</sub> : \_\_\_\_\_\_
- (c) (3 points) Find the computed test statistic and the P-value. Name the TI command used.

C.T.S. : \_\_\_\_\_

P-Value : \_\_\_\_\_

- (d) (3 points) Based on your conclusion, when working with two population means, would you consider YES or NO option for pooling?
- (e) (3 points) Construct a 95% confidence interval for the difference between two population means  $\mu_1 \mu_2$  of communication skills of all nurses using data in table 4.

(e) \_\_\_\_\_

(d) \_\_\_\_\_

Use  $\alpha = 0.02$  by using the data in table 4 to test a claim that the mean percentage of communication skills of all nurses in hospital A is less than the mean percentage of communication skills of all nurses in hospital B.

- (f) (2 points) Clearly state  $H_0$ ,  $H_1$ , identify the claim and type of test.
  - *H*<sub>0</sub> : \_\_\_\_\_
  - *H*<sub>1</sub> : \_\_\_\_\_
- (g) (3 points) Find the computed test statistic and the P-value.

C.T.S. : \_\_\_\_\_

P-Value : \_\_\_\_\_

(h) (2 points) Use the p – value method and non-statistical terminology to state your final conclusion about the claim.

(h) \_\_\_\_\_