

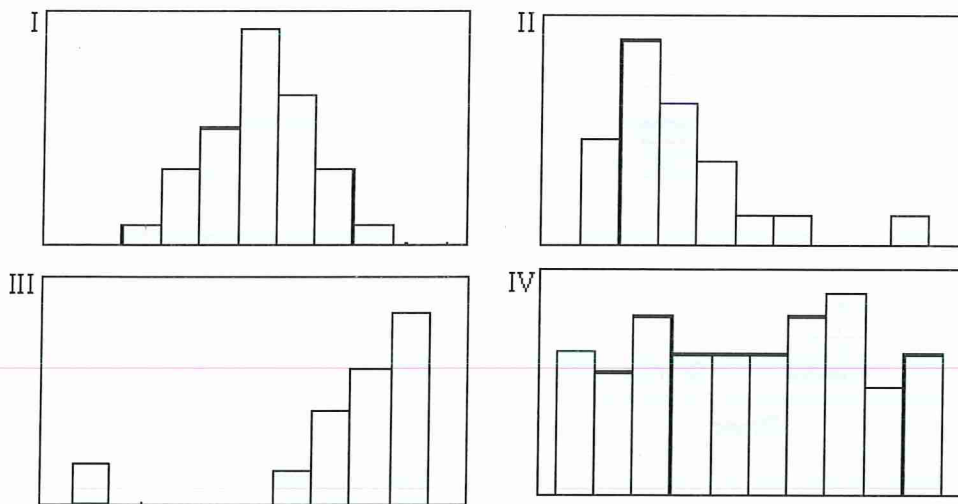
Out of 40 points

STA1001C Chapter 2 Test
Section 1: Multiple Choice

Name Key

PUT YOUR ANSWERS ON THE ANSWER SHEET PROVIDED.

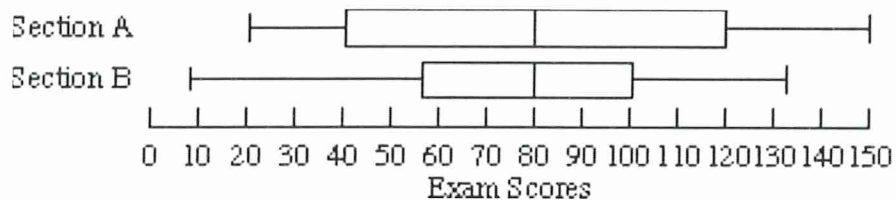
Question 1 refers to the four histograms that are displayed below.



1. Which of these distributions would you describe the shape as right skewed?

- a. Histogram I
- b. Histogram II
- c. Histogram III
- d. Histogram IV

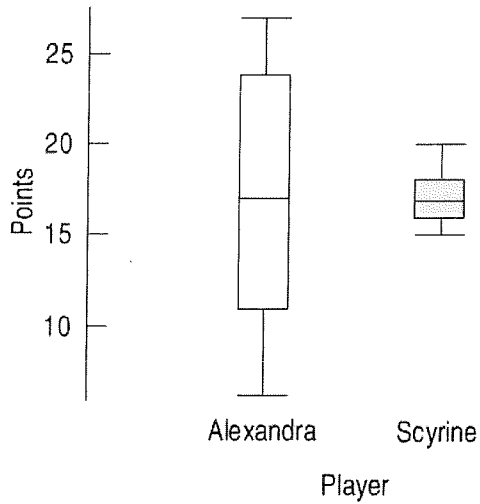
2. The two boxplots below display final exam scores for all students in two different sections of the same course.



Which section has more students?

- a. Section A
- b. Section B
- c. It is impossible to tell from the boxplots.

3. Alexandra and Scyrine are two friends that play for the same college basketball team. The state championship game is coming up and the coach can only take one of them. The two friends have a heated debate about which of them is the better player and should be playing in the championship game. The boxplots below show the points scored during the first 10 games of the season for both players.

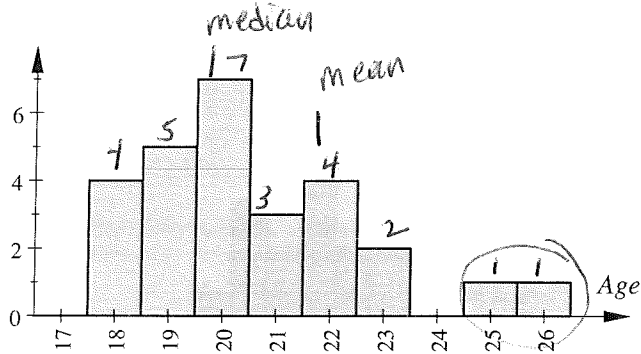


Which of the players has the smallest variability?

- a. Alexandra
 - b. Scyrine
 - c. It is impossible to tell from the boxplots.
4. If a data set has outliers and the outliers are removed, which of the following statistics would be least affected?
- a. Mean
 - b. Median
 - c. Mode

Questions 5 – 8 refer to the histogram below.

The distribution for the ages of students in a statistics class is displayed below.



5. Which of the following describes the shape of the distribution represented by the histogram shown above?
- symmetric
 - skewed to the right
 - skewed to the left
 - uniform
6. For the data shown in the histogram above the best way to describe the center and spread is to use the:
- mean and standard deviation.
 - the median and the standard deviation.
 - median and the IQR.
 - the mean and the range.
7. For the data shown in the previous histogram we expect:
- the median to be greater than the mean.
 - the mean to be greater than the median.
 - the mean to be equal to the median.
8. For the data shown in the previous histogram, what percentage of students were 25 and 26 years old? Round to the nearest tenth.

- 2.0%
- 7.4%
- 10.4%
- 14.0%

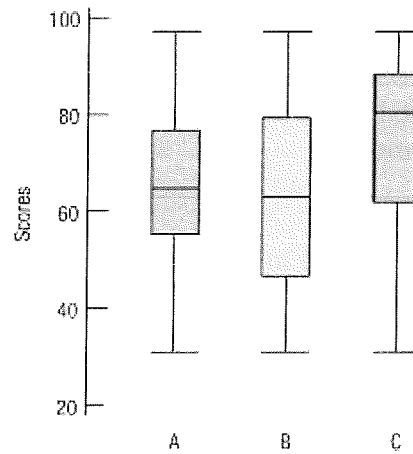
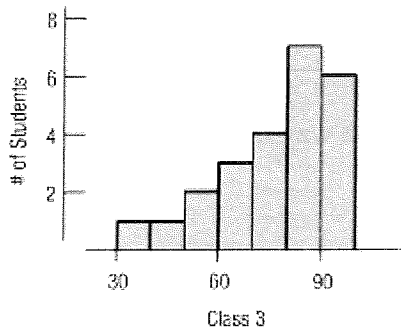
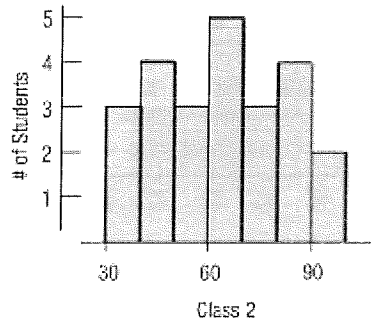
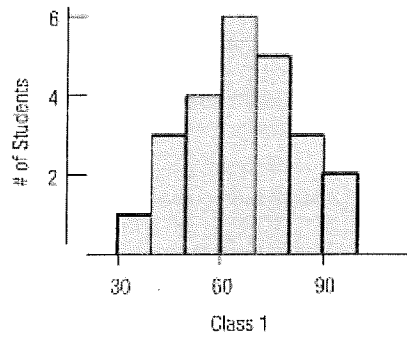
$$\frac{2}{27} = 0.074$$

$$7.4\%$$

4	.
5	
7)
3	
4)
2	
1	
1	
<hr/>	
27	

Questions 9-10 refers to the graphs below.

Three Statistics classes all took the same test. Histograms for each class are shown below along with corresponding boxplots for the three classes.



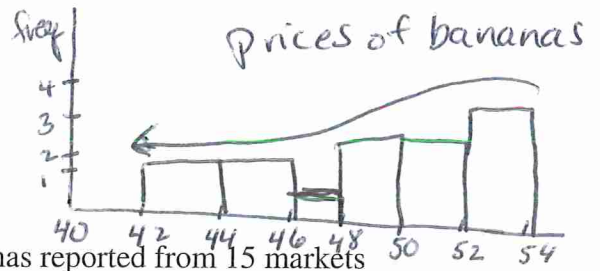
9. Which class tests scores are typically higher?

- a. Class 1
- b. Class 2
- c. Class 3

10. Which boxplot corresponds to Class 1?

- a. Boxplot A
- b. Boxplot B
- c. Boxplot C

Section 2: Free Response



1. Below are the prices (in cents per pound) of bananas reported from 15 markets surveyed by the US Department of Agriculture

51	52	45	48	53
52	50	49	52	48
43	46	45	42	50

42 43 45 45 46 48 48 49 50 50 51 52 52

52 53

Q1

med

Q3

A) Find the five-number summary for the data. Provide that information in the space below.

5

min = 42 max = 53
 Q1 = 45
 Q med = 49
 Q3 = 52

B) Write a few sentences describing the distribution (include: shape, center and spread).

- 2 shape: The distribution is left skewed possibly bi modal.
- 2 center: The center is the median = 49
- 2 spread: The spread is the IQR = $Q3 - Q1 = 52 - 45 = 7$
The range max - min = $53 - 42 = 11$

C) Calculate the lower fence.

2

$$Q1 - 1.5(IQR)$$

$$45 - 1.5(7)$$

$$45 - 10.5 = 34.5$$

D) Calculate the upper fence.

2

$$Q3 + 1.5(IQR)$$

$$52 + 1.5(7)$$

$$52 + 10.5 = 62.5$$

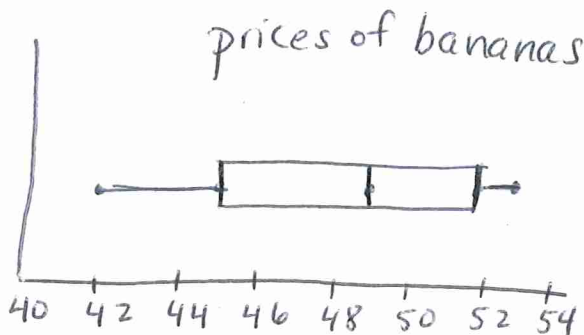
E) Are there any outliers? If so, what are they?

2

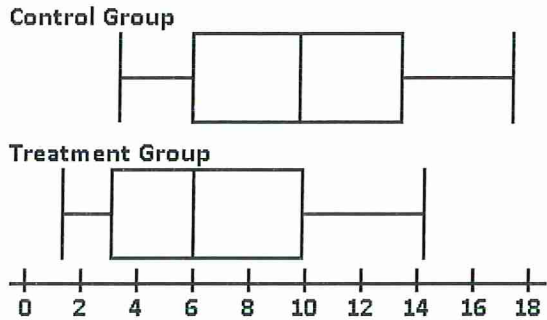
No outliers on left since no data value below 34.4
 No outliers on right since no data value above 62.5.

F) Make a box plot of this data.

3



2. The box plots summarize results from a medical study. The treatment group received an experimental drug to relieve cold symptoms. The control group received a placebo. Researchers hoped that the treatment group would recover faster, meaning they would have a lower number of days reporting cold symptoms. The box plots show the number of days each group took to recover from the cold symptoms. Use these box plots to answer the following question.



a) Use the boxplots to write a few sentences comparing the distributions of ~~age at first marriage~~ ^{groups} by gender. Be sure to include the following in your descriptions: shape, center and spread. Point out any similarities and differences. control and treatment

- ② shape: Difficult to tell given boxplot, could be symmetric.
- ③ center: The center for control is 10 days while the center for treatment is lower at 6 days.
- ③ spread: IQR for control is $13 - 6 = 7$ days while IQR for treatment is $10 - 3 = 7$ days. Range for control is $17 - 3 = 14$ days while treatment = $14 - 1 = 13$ days.
Spread/variability is about the same.

b) **Based on the data above:** Did the treatment group recover more quickly than the control group? Explain.

- ② Yes, typically the treatment group recovered in 6 days while the control group took longer to recover at 10 days.

1 each

Answer Sheet for **Multiple Choice Section** Name _____

Key

1. B

2. C

3. B

4. B

5. B

6. C

7. B

8. B

9. C

10. A

