Prince Sultan University

STAT 101

Major Test II

Semester I, Term 162

Monday, March 13th, 2016

Time Allowed: **90** minutes

Student Name: _____

Student ID #: _____

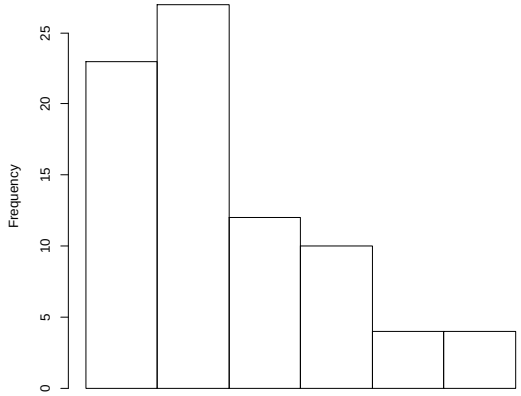
Teacher's Name: _____Section #: _____

Important Instructions:

1. You may use a scientific calculator that does not have programming or graphing capabilities.
2. You may NOT borrow a calculator from anyone.
3. You may NOT use notes or any textbook.
4. There should be NO talking during the examination.
5. Your exam will be taken immediately if your mobile phone is seen or heard
6. Looking around or making an attempt to cheat will result in your exam being cancelled
7. This examination has 7 problems, some with several parts. Make sure your paper has all these problems.

Problems	Max points	Student's Points
1,2	3, 10	
3	20	
4,5	10, 10	
6, 7	15, 12	
Total	**80**	

Q1. 3pts)



The student who analyzed the data presented in this graphic wrote down two numbers: 3.95 and 3.34. He forgot which of these values is the mean and which is the median. Can you help him determine which is the mean? Justify your answer

Q2 10 pts)

Consider the following data values: -2, 3, 4, 4, 7,9

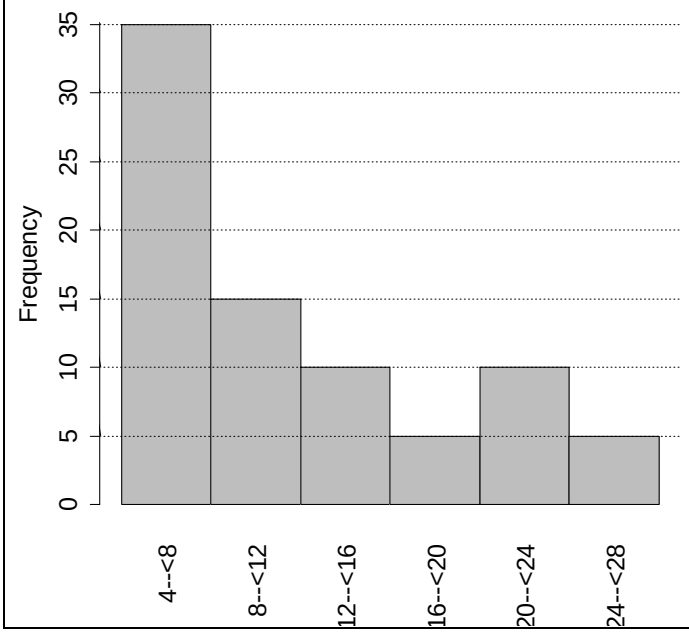
a. Find the standard deviation (5points)

b. What is the mode ? (2points)

c. What is the coefficient of variation? (3 points)

Q3. 20 pts) consider the following histogram

a. Construct the frequency distribution (Show classes, frequencies , relative frequencies and cumulative relative frequencies (10 points)



b. What can you say about the shape of these data? (2points)

c. Draw an Ogive of these data (5 points)

d. What is the percentage of data values that are less than 16 (3 points)

Q4. 10 points) Given two distribution with the following characteristics:

Distribution A	Distribution B
$\mu = 5,600$	$\mu = 45.4$
$\sigma = 1,300$	$\sigma = 7.8$

a. If a value from distribution A is 7,000 and a value from distribution B is 51.0, convert each value to a standardized *z* value and indicate which one is relatively closer to its respective mean. (5 points)

b. Which of the two distributions has a larger variability relative to its mean? . (5 points)

1. **Q5. 10 points)** Here are the red blood cell counts (in 10^6 cells per microliter) of a healthy person measured on each of 15 days:

5.4	5.2	5.0	5.2	5.5
5.3	5.4	5.2	5.1	5.3
5.3	4.9	5.4	5.2	5.2

a. Find the median of the red blood cell counts (3 points)

b. Find the interquartile range of the red blood cell counts. Interpret this value (4 points)

c. Calculate the 5^{th} percentile of the red blood cell counts. (3 points)

Q6 15 points) Students scored the following grades on a statistics test: 80, 80, 82, 84, 85, 86, 88, 90, 91, 92, 92, 94, 96, 98, 100, 32. Calculate the and sketch the following.

a. The interquartile range (IQR) (4 points)

b. Find the 89^{th} percentile.) (2 points)

c. Sketch the boxplots. (4 points)

d. Are there any outliers? Explain your answer. If yes which values are outliers? (2 points)

Q7 12 points) A distribution has a mean μ = 96 and a variance σ^2 =9.

a. What percentage of data values is expected to be less than 93? (4 points)

b. What percentage of data values is expected to be between 99 and 102? (4 points)

c. What percentage of data values is expected to be greater than 102? (4 points)