



Prince Sultan University
STAT 101
First Examination
First Semester 2011/2012, Term 111
Wednesday, 19th October 2011
Dr. Bahha Eldin Abdalla

Time Allowed: 90 minutes
Maximum points: 40 points

Name: _____ **ID Number #** _____
(First) (Middle) (Last)

Important Instructions:

1. You may use CASIO scientific calculator that does not have programming or graphing capabilities.
2. You may NOT borrow a calculator from anyone.
3. You do NOT get special consideration if you forget your calculator.
4. Don't use notes or any notebook.
5. There should be NO talking during the examination.
6. Your exam will be taken immediately without any warning if your mobile is seen or heard.
7. You must show all your work beside the problem. Be organized.
8. You may use the back of the pages for extra space, but be sure to indicate that on the page with the problem.
9. This examination has 7 problems, some with several parts. Make sure that your paper has all these problems

Problem	Max points	Student's Points
1,2,3,4	13	
5	10	
6	11	
7	6	
Total	40	

Q1 (5 points)

(a) What type of sampling is being employed if the country is divided into economic classes and a sample is chosen from each class to be surveyed?

(b) “The water temperatures of eight swimming pools in a city on a given day” is what type of data?

(c) In the following statement, tell which kind of statistics have been used.
“Drinking decaffeinated coffee can raise cholesterol levels by 7%.”

(d) What level of measurement allows for the ranking of data, a precise difference between units of measure, and also includes a true zero?

(e) The variable “number of cheeseburgers sold each day by a hamburger stand on a college campus” is classified as:

(1) continuous ratio

(2) discrete ratio

(3) discrete interval

(4) continuous interval

Q2 (4 points) Find the class boundaries and the class width for each class limit.

(a) 10 – 20

(b) 0.351 – 0.870

Q3 (2 points) The mean of a distribution is 25 and the variance is 9. What can you say about the percentage of the values that will fall between 14.5 and 35.5.

Q4 (2 points) The average full-time faculty members in a post-secondary degree-granting institution works an average of 50 hours per week. If we assume a bell-shaped distribution and a standard deviation of 2.3 hours, what percentage of faculty members work less than 47.7 hours a week?

Q5 (10 points) In a study of reaction times of dogs to a specific stimulus, an animal trainer obtained the two following sets of data.

Younger dogs		Older dogs	
Class limits	Frequency	Class limits	Frequency
2.3 – 2.9	10	2.3 – 2.9	2
3.0 – 3.6	13	3.0 – 3.6	2
3.7 – 4.3	6	3.7 – 4.3	4
4.4 – 5.0	7	4.4 – 5.0	15
5.1 – 5.7	5	5.1 – 5.7	16
5.8 – 6.4	3	5.8 – 6.4	5

(a) Find the mean, the standard deviation and the mode for younger dogs.

(b) What proportion of younger dogs have reaction times less than 3.7 seconds?

(c) What percentage of older dogs have reaction time less than 3.7 seconds?

(d) Construct a frequency polygon for the older dogs. Comment on the shape of the distribution.

Q6 (11 points total) The following data are the numbers of burglaries reported for a specific year for nine universities.

62, 12, 2, 2, 1, 33, 12, 2, 7

1. **(2 points)** Find the median and the mode.
2. **(2 points)** Calculate the coefficient of variation.
3. **(2 points)** Find the interquartile range.
4. **(2 points)** Construct a boxplot for the data.
5. **(1 point)** Use the boxplot to describe the shape of the distribution.
6. **(2 points)** Check the above data set for outliers.

Q7 (6 points) The growth (in centimeters) of two varieties of plant after 20 days is shown in this table.

Variety 1				Variety 2			
49	24	37	27	44	55	47	48
49	43	39	58	34	68	13	59
53	18	59	53	58	29	19	52
37	55	59	24	57	36	58	53
33	51	36	53	48	51		

(a) Construct a back to back stem and leaf plot. Describe the shape of the two distributions.

(b) Find the range of each variety. Decide which distribution is more variable?

Q8 (4 points extra) A data set consists of 16 measurements. The following information is given.

$$\bar{x} = 65.1875 \quad \text{and} \quad \sum x_i^2 = 77927$$

(a) Calculate the standard deviation.

(b) If the distribution is mound shaped, what is the 16th percentile?