Business Statistics (COMM 215)

Quiz 1: Submission Review

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Sections:	• **PART 1:** 9 / 9 • **Questions 10 to 11 are based on the following::** 2 / 2 • **Questions 12 to 19:** 7 / 8 • **Questions 20 to 22:** 2 / 3 • **PART 2:** 0 / 0 • **Question 23:** 0 / 0 • **Questions 24 to 25:** 4 / 4
Total Grade:	24 / 26 (92.31%)

Legend:

Your correct response is highlighted in **green**.
Your incorrect response is highlighted in **red**.
If you did not select the correct answer, it will be highlighted in **blue**.

PART 1

MULTIPLE CHOICE QUESTIONS: 1 point for each question. Some of the numbers in the provided choices have been rounded.

Identify the choice that best completes the statement or answers the question.

Question 1: (1 Point)

For sample of 100 observations, let D represent the value of the difference between 90th percentile and the 10th percentile. Then the statistic D provides information concerning

a. Absolute distance
b. None of the suggested answers are correct
c. Skewness
d. Variability
e. Relative position

Question 2: (1 Point)

The average time for an accountant to file tax return forms is one hour and fifteen minutes with a standard deviation of twenty-five minutes. Based on Tchebysheff's rule, what is the percentage of tax returns that take more than two hours and thirty minutes to fill?

a. None of the suggested answers are correct
b. 57
c. 5.5
d. 11
e. 0.25

Question 3: (1 Point)

A market research company has collected data on the price of a particular brand of soap in several different locations. The prices are as follows: $0.89, 0.95, 1.21, 1.36, 1.49, 1.65, 1.71, 1.89, 1.99. What are the upper and lower quartiles of soap prices for this brand?

a. 1.71, 1.21
b. 1.84, 1.17
c. 6.75, 2.25
d. None of the suggested answers are correct

e. 2.21, 0.74

Question 4: (1 Point)

Given the following information: mean = 20.5; Coefficient of variation = 40%; the Standard deviation would then be

a. 0.51
b. 67.24
c. 8.2
d. 50
e. None of the suggested answers are correct

Question 5: (1 Point)

Consider data entry into a ZUBRAK Inc. database corresponding to the variable 'Gender' of an employee, 100 representing that an employee is a male and 101 representing that an employee is a female. In this case the variable is

a. qualitative
b. None of the suggested answers are correct
c. quantitative
d. neither qualitative nor quantitative
e. either qualitative or quantitative

Question 6: (1 Point)

What measure of central tendency is most sensitive to skewness?

a. The median
b. Median and Mean
c. The mean
d. None of the suggested answers are correct
e. The mode

Question 7: (1 Point)

During a cold winter, the temperature stayed below zero for the first ten days ranging from -20 to -5 degree Celsius and for the second ten days it fluctuated between -5 and 5 and degree Celsius. The mean and standard deviation of the temperatures of the twenty-day period

a. the mean is at most zero and the standard deviation must be at least zero
b. None of the suggested answers are correct
c. the mean is below zero and the standard deviation must be at least zero
d. are both negative since the temperatures for most days are negative
e. can be either negative or positive

Question 8: (1 Point)

In a sample of 1,000 observations from a bell-shaped distribution, how many would you expect to lie at least two standard deviations above the mean?

a. None of them
b. About 127
c. None of the suggested answers are correct
d. About 250
e. About 25

Question 9: (1 Point)

A shoe company reports the median for the shoe sizes of women's shoes is 8. The interpretation of the result is

a. Fifty percent of all women's shoe sizes are size 8
b. Most women have shoe sizes between at most 8
c. About fifty percent of the shoes sold to women are larger than size 8
d. The most common shoe size for women is at least 8
e. None of the suggested answers are correct

Questions 10 to 11 are based on the following:

The following is a stem-and-leaf display of a data set (values after the vertical line are the leaves).

Leaf unit=0.1

```
          9
          9 7
        8 8 7
        3 8 5
    1 7 1 8 4 4
8 2 0 5 0 4 1 1
2 3 4 5 6 7 8 9
```

Question 10:

For this data the mean=6.87 and standard deviation=1.91. The z-score for the second quartile value is

(1 Point)

a. None of the suggested answers are correct
b. -0.478
c. 0.500
d. 0.487
e. 7.78

Question 11: **For this data set the interquartile range is**

(1 Point)

a. 2.4
b. 27.5
c. None of the suggested answers are correct
d. 35
e. 2.7

Question 12: **Which of the following techniques are applicable to quantitative data?**

(1 Point)

a. None of the suggested answers are correct
b. All of the answers are correct
c. Stem-and-Leaf display
d. Frequency Distribution
e. Scatter diagram and Dot plot

Question 13: **What measure of central tendency would be most appropriate for a measurement of salaries when there are a few people in the sample who make over one million dollars, but most of the employees sampled made under $50,000?**

(1 Point)

a. Mean
b. All three; it would depend on your situation
c. Mode
d. None of the suggested answers are correct
e. Median

Question 14: **A clothes store manager has sales data of trouser sizes for the last month's sales. Which measure of central tendency should the manager use, if the manager is interested in the most sellable size?**

(1 Point)

a. Standard deviation
b. Mean
c. Median
d. None of the suggested answers are correct
e. Interquartile range

Question 15: **In a set of scores, the value 20 occurs 30 times, the value 30 occurs 30 times, while the value 40 occurs 61 times. Which of the following is a correct statement?**

(1 Point)

a. None of the suggested answers are correct
b. The mean and the median are equal.
c. The median is greater than the mean.
d. The mean and the mode are equal.
e. The mean is greater than the median.

Question 16: **In a positively skewed distribution, the**

(1 Point)

a. mean is smaller than the median and the median is greater than the mode.
b. None of the suggested answers are correct
c. mean is smaller than the median and the median is smaller than the mode.
d. mean is greater than the median and the median is smaller than the mode
e. mean is greater than the median and the median is greater than the mode.

Question 17: **Which of the following qualitative variables would most likely be treated as ordinal data?**

(1 Point)

a. Race: White; Black/African American; Asian; Hispanic; Other
b. Marital Status: Single (Never Married); Single (Previously Married); Married
c. Households w/Children: Married Couple; Male Householder; Female Householder
d. None of the suggested answers are correct
e. Education: Some High School; Some College; College Graduate; Beyond College

Question 18: **Which of the following is not a correct statement?**

(1 Point)

a. Tchebysheff's theorem applies only to normal distributions.
b. The vertical line within the box in the box-and-whisker plot represents the median.
c. The coefficient of variation allows us to compare two sets of data based on different measurement units.
d. Standardized values have no units of measure.
e. For distributions that are bell-shaped and symmetric, about 68% of the observations will fall within one standard deviation of the mean.

Question 19: **If you are told a population has a mean of 25 and a standard deviation of zero, what must you conclude?**

(1 Point)

a. None of the suggested answers are correct
b. Someone has made a mistake
c. There are no elements in the population
d. There is only one element in the population
e. All the elements in the population are equal to 25

Consider the following statements:

Question 20:

(1 Point)

i. The high temperature is recorded each day for a period of 1 year. This is an example of ordinal data.

ii. A human resources department recently conducted an employee satisfaction survey of 100 of its 3000 employees. Data were collected on variables gender and marital status are considered to be ratio level data.

iii. A JMSB data base includes the number of people who are enrolled in each class the School offers. This is considered as ratio data.

The correct answer is:

a. All (i), (ii) and (iii) are true
b. (i) and (ii) are true
c. (i) and (iii) are true
d. None of the suggested answers are correct
e. (ii) and (iii) are true

Question 21:

(1 Point)

i. A major insurance company believes that for drivers between 16 years of age and 60 years of age, the number of accidents per year tends to decrease as age increases. If this is the case, a scatter diagram should show an inverse relationship between the two variables.

ii. A company is interested in analyzing the relationship between end-of-the-week inventory levels and sales for the same week. The graph that most likely would be used to show this relationship is a histogram.

iii. In analyzing a single quantitative variable, you will generally choose to use a scatter diagram if the variable is measured over time and a histogram if the variable is cross-sectional.

The correct answer is:

a. (i) true and (iii) are true
b. (i) false and (iii) are true
c. (i) and (ii) are true
d. None of the suggested answers are correct
e. (i) true and (iii) are false

Question 22:

(1 Point)

i. A stem and leaf diagram is more appropriate for graphically displaying a joint frequency distribution than is a histogram since the stems can be used to display one variable while the leaves can be used to display the second variable.

ii. If a company plans to display the sales for each of its six major products for the year 2016, an effective chart to do this would be a histogram. '

iii. A scatter diagram is a line graph without the points connected by a straight line.

The correct answer is:

a. (ii) and (iii) are true
b. None of the suggested answers are correct
c. (i) and (iii) are true
d. All (i), (ii) and (iii) are false
e. (i) and (ii) are true

PART 2

FILL IN THE BLANKS QUESTIONS. 2 points for each question.

Solve the given problem and in the blank space provided, fill in the numerical answer only, rounded **if necessary,** to a maximum of 2 decimal places. **Absolutely NO TEXT or SYMBOL** (such as %, $ …) **should be part of the answer** to avoid **system grading errors.**

The following is a stem-and-leaf display of a data set (values after the vertical line are the leaves). The mean and the standard deviations are 518.75 and 175.37, respectively.

Leaf unit = 1

2	37
3	46667899
4	144456
5	0334578
6	012
7	489
8	1
9	
10	1
11	9

Question 23: **Find the interquartile range**

(0 Points)

Your answer: **22**

Question 24: **A recent survey was conducted to compare the cost of solar energy to the cost of gas or electric energy. Results of the survey revealed that the distribution of the amount of the monthly utility bill of a 3-bedroom house using gas or electric energy had a mean of $200 and a standard deviation of $25. If the distribution of monthly utility bills of homes is assumed to be not bell-shaped, what percentage of homes will have a monthly utility bill of more than $150?**

(2 Points)

Your answer: **75**

Question 25: **A random sample of 10 accounts is taken from a bell-shaped distribution with a median balance of $600. A second sample of 5 randomly selected accounts resulted in an average balance of $615. What is the mean balance for the combined group consisting of 15 accounts?**

(2 Points)

Your answer: **605**