WORKSHEET

STATISTICS WORKSHEET-9

Q1 to Q12 have only one correct answer. Choose the correct option to answer your question.

1. The owner of a travel agency would like to determine whether or not the mean age of the agency's customers is over

24. If so, he plans to alter the destination of their special cruises and tours. If he concludes the mean age is over 24

when it is not, he makes a _____ error. If he concludes the mean age is not over 24 when it is, he makes a

_____error.

a. Type II; Type II

b. Type I; Type I

c. Type I; Type II

d. Type II; Type I

2. Suppose we wish to test H0: μ =53 vs H1: μ > 53. What will result if we conclude that the mean is greater than 53

when its true value is really 55?

a. We have made a Type I error

b. We have made a correct decision

c. We have made a Type II error

d. None of the above are correct

3. The value that separates a rejection region from an acceptance region is called a _____.

a. parameter

b. critical value

c. confidence coefficient

d. significance level

4. A hypothesis test is used to prevent a machine from under filling or overfilling quart bottles of beer. On the basis of

sample, the machine is shut down for inspection. A thorough examination reveals there is nothing wrong with the

filling machine. From a statistical point of view:

a. Both Type I and Type II errors were made.

b. A Type I error was made.

c. A Type II error was made.

d. A correct decision was made.

5. Suppose we wish to test H0 : μ =21 vs H1 : μ > 21. Which of the following possible sample results gives the most

evidence to support H1 (i.e., reject H0)? Hint: Compute Z-score.

a. x = 23 s , = 3

b. x = 19 s , = 4

c. x = 17 s , = 7

d. x = 18 s , = 6

6. Given H0: μ = 25, H1: μ ≠ 25, and P-value = 0.041. Do you reject or fail to reject H0 at the 0.01 level of

significance?

a. fail to reject H0

b. not sufficient information to decide

c. reject H0

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7. A bottling company needs to produce bottles that will hold 12 ounces of liquid. Periodically, the company gets

complaints that their bottles are not holding enough liquid. To test this claim, the bottling company randomly samples

36 bottles. Suppose the p-value of this test turned out to be 0.0455. State the proper conclusion.

a. At α = 0.085, fail to reject the null hypothesis.

b. At α = 0.035, accept the null hypothesis.

c. At α = 0.05, reject the null hypothesis.

d. At α = 0.025, reject the null hypothesis.

8. If a hypothesis test were conducted using α = 0.05, for which of the following p-values would the null hypothesis be

rejected?

a. 0.100

b. 0.041

c. 0.055

d. 0.060

9 . For H1: μ > μ0 p-value is 0.042. What will be the p-value for Ha: μ < μo?

a. 0.084

b. 0.021

c. 0.958

d. 0.042

10. The test statistic is t = 2.63 and the p-value is 0.9849. What type of test is this?

a. Right tail

b. Two tail

c. Left tail

d. Can't tell

11. The test statistic is z =2.75, the critical value is z = 2.326. The p- value is …

a. Less than the significance level

b. Equal to the significance level

c. Large than the significance level

12. The area to the left of the test statistic is 0.375. What is the probability value if this is a left tail test?

a. 0.750

b. 0.375

c. 0.1885

d. 0.625

Q13 to Q15 are subjective answers type questions, Answers them in their own words briefly.

13.What is T distribution and Z distribution?

The **Z** distribution is a special case of the normal distribution with a mean of **0** and standard deviation of **1**. The **t-distribution** is similar to the **Z-distribution**, but is sensitive to sample size and is used for small or moderate samples when the population standard deviation is unknown. At large samples, the **z** and **t samples** are very similar.

14.Is the T distribution normal?

The t -distribution is a type of normal distribution that is used for smaller sample sizes.

15.What does the T distribution tell us?

The *t*-distribution, also known as Student's *t*-distribution, is a way of describing data that follow a bell curve when plotted on a graph, with the greatest number of observations close to the mean and fewer observations in the tails