Worksheet No. 3 Statistics
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1. Rejection of the null hypothesis is a conclusive proof that the alternative hypothesis is
c. Neither

2. Parametric test, unlike the non-parametric tests, make certain assumptions about
b. The underlying distribution

3. The level of significance can be viewed as the amount of risk that an analyst will accept when making a decision
a. True

4. By taking a level of significance of 5% it is the same as saying
b. We are 95% confident that the results have not occurred by chance

5. One or two tail test will determine
c. If the region of rejection is located in one or two tails of the distribution

6. Two types of errors associated with hypothesis testing are Type I and Type II. Type II error is committed when
c. We accept a null hypothesis when it is not true

7. A randomly selected sample of 1,000 college students was asked whether they had ever used the drug Ecstasy. Sixteen percent (16% or 0.16) of the 1,000 students surveyed said they had. Which one of the following statements about the number 0.16 is correct?
a. It is a sample proportion.

8. In a random sample of 1000 students, $\hat{p} = 0.80$ (or 80%) were in favour of longer hours at the school library. The standard error of $\hat{p}$ (the sample proportion) is
a. .013

9. For a random sample of 9 women, the average resting pulse rate is $x = 76$ beats per minute, and the sample standard deviation is $s = 5$. The standard error of the sample mean is
c. 1.667

10. Assume the cholesterol levels in a certain population have mean $\mu = 200$ and standard deviation $\sigma = 24$. The cholesterol levels for a random sample of $n = 9$ individuals are measured and the sample mean x is determined. What is the z-score for a sample mean $x = 180$?
c. –2.50

11. In a past General Social Survey, a random sample of men and women answered the question "Are you a member of any sports clubs?" Based on the sample data, 95% confidence intervals for the population proportion who would answer "yes" are .13 to .19 for women and .247 to .33 for men. Based on these results, you can reasonably conclude that

c. There is a difference between the proportions of American men and American women who belong to sports clubs.

12. Suppose a 95% confidence interval for the proportion of Americans who exercise regularly is 0.29 to 0.37. Which one of the following statements is FALSE?
b. It is reasonable to say that more than 40% of Americans exercise regularly.

13. How do you find the test statistic for two samples?
Ans: If two samples are given drawn from different population, with unknown standard deviation and are small in size to check difference between the means of two sample, the two sample t test is used.
If the samples are drawn from same population then two sample z test is carried out, when standard deviation of population is known with large sample.

14. How do you find the sample mean difference?
Ans
Step 1: The expected value of the difference between all possible sample means is equal to the difference between population means. Thus,
$E(x1 - x2) = \mu d = \mu 1 - \mu 2$.
Step 2: The standard deviation of the difference between sample means (σd) is approximately equal to:
$\sigma d = sqrt(\sigma 12 / n1 + \sigma 22 / n2)$

15. What is a two sample t test example?
Ans: Two sample t test is used to determine if the two samples means are equal or not.we can consider a example of any process governed by current procedure and improvised procedure just to check whether there is any similarity is there or not between the processes or newer is better or not.