

Semester Three (Statistics) Mathematics T

1. Why an interval estimate is more informative than a point estimate?
 - Interval estimate gives the probability that the real value of the population parameter will lie within the interval stated.
2. Significance level
 - The standard which is used to reject the null hypothesis in a hypothesis test. In other words, it is the probability of rejecting H_0 when H_0 is true.
3. Critical Region
 - The set of values of the test statistic for which the null hypothesis is rejected.
4. Suggest two ways to reduce the width of the confidence interval that you obtain.
 - Increase the sample size
 - Decrease the percentage of confidence interval
5. Interpret and comment on the confidence interval
 - The population mean lies between XX and YY with ZZ% confidence.
6. Describe briefly the standard normal random variable
 - The standard normal random variable is a continuous random variable with a mean of 0 and a variance of 1. $Z \sim N(0,1)$
7. Give two reasons why Poisson distribution cannot be an exact model for Y.
 - The number of XX is finite and limited
 - The mean number of XX is not known.
8. Hypothesis Testing
 - Method of using sample data to test a statistical hypothesis about population parameters.
9. Null Hypothesis
 - A statement about population parameter that assume to be true

10. Critical value

- Compare to the test statistic to determine whether to reject null hypothesis

11. Explain the meaning of "at the 5% significance level"

- The probability of rejecting hypothesis that _____ when it is true at _____.

12. Explain the meaning of type one error.

- Concluding that _____ when it hasn't.

13. Random Sample:

- Each member of the population has the equal chance of being selected into sample

14. What is the difference between parameter and statistics:

- A parameter is any quantitative measure which characterize a population.
- A statistics is any quantitative measure which characterize a sample

15. Sampling

- A process of choosing sample from a population

16. Why central limit theorem is not needed

- X has a normal distribution

17. Why median is the best measure of central tendency

- Because the data is positively/negatively skewed

18. Why binomial distribution is the suitable model for Y.

- There are two possible outcomes. Success and failure
- The probability of success, p , is constant
- The trials are independent