STATISTICS WORKSHEET-5

Q1 to Q10 are MCQs with only one correct answer. Choose the correct option.

1. Using a goodness of fit,we can assess whether a set of obtained frequencies differ from a set of frequencies.
   a) Mean
   b) Actual
   c) Predicted
   d) Expected

Answer: d) Expected

Explanation: In a goodness-of-fit test, we compare the observed frequencies (obtained frequencies) to the expected frequencies, which are the frequencies we would expect to obtain if the null hypothesis were true.

2. Chisquare is used to analyse
   a) Score
   b) Rank
   c) Frequencies
   d) All of these

Answer: **c) Frequencies**

- **Explanation:** The chi-square test is a statistical test used to determine if there is a significant association between categorical variables. It compares the observed frequencies in each category to the frequencies that would be expected if there were no association between the variables.

3. What is the mean of a Chi Square distribution with 6 degrees of freedom?
   a) 4
   b) 12
   c) 6
   d) 8

Answer: c) 6

- **Explanation:** The mean of a chi-square distribution is equal to its degrees of freedom. Therefore, with 6 degrees of freedom, the mean is 6.

4. Which of these distributions is used for a goodness of fit testing?
   a) Normal distribution
   b) Chi sqared distribution
   c) Gamma distribution
   d) Poission distribution

Answer: **b) Chi-square distribution**

- **Explanation:** The chi-square distribution is specifically used in the goodness-of-fit test to compare the observed distribution of data to an expected distribution under the null hypothesis.

5. Which of the following distributions is Continuous
   a) Binomial Distribution
   b) Hypergeometric Distribution
   c) F Distribution

d) Poisson Distribution

Answer: **c) F Distribution**

Explanation: The F distribution is a continuous probability distribution that arises frequently as the null distribution of a test statistic, especially in analysis of variance (ANOVA).

6. A statement made about a population for testing purpose is called?
   a) Statistic
   b) Hypothesis
   c) Level of Significance
   d) TestStatistic

Answer: **b) Hypothesis**

Explanation: A hypothesis is a statement about a population parameter that we want to test. It is an assumption that we aim to support or refute through statistical analysis.

7. If the assumed hypothesis is tested for rejection considering it to be true is called?
   a) Null Hypothesis
   b) Statistical Hypothesis
   c) Simple Hypothesis
   d) Composite Hypothesis

Answer: **a) Null Hypothesis**

Explanation: The null hypothesis (H0) is a statement of no effect or no difference that we test against an alternative hypothesis. It is the hypothesis that we assume to be true for the purpose of testing.

8. If the Critical region is evenly distributed then the test is referred as?
   a) Two tailed
   b) One tailed
   c) Three tailed
   d) Zero tailed

Answer: **a) Two-tailed**

Explanation: A two-tailed test has the critical region in both tails of the distribution. It tests for the possibility of an effect in two directions, both positive and negative.

9. Alternative Hypothesis is also called as?
   a) Composite hypothesis
   b) Research Hypothesis
   c) Simple Hypothesis
   d) Null Hypothesis

Answer: **b) Research Hypothesis**

Explanation: The alternative hypothesis (H1) is the hypothesis that there is an effect or a difference. It is called the research hypothesis because it is the hypothesis that the researcher aims to support.

10. In a Binomial Distribution, if ‘n’ is the number of trials and ‘p’ is the probability of success, then the mean value is given by _____
    a) np
    b) n

Answer: **a) np**

Explanation: In a binomial distribution, the mean (expected value) is calculated as the product of the number of trials (n) and the probability of success (p), i.e., mean = np.