STATISTICS WORKSHEET-5

Q-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

ANS: d) Expected.

In statistics, the goodness of fit test is used to determine how well a set of observed data fits a theoretical distribution or expected frequencies. It compares the observed frequencies with the expected frequencies under the null hypothesis so that there is no difference between them.

Q-2: chi-square is used to analyse.

a) Score

b) Rank

c) Frequencies

d) All of these

ANS: - c) frequencies

The Chi-square test is commonly used to analyse frequencies in categorical data. It assesses whether there is a significant association between two categorical variables by comparing the observed frequencies in a contingency table with the frequencies that would be expected if the variables were independent.

Q-3: What is the mean of a Chi Square distribution with 6 degrees of freedom?

a) 4

b) 12

c) 6

d) 8

ANS: c)6

The mean of a Chi-square distribution is equal to its degrees of freedom. Therefore,

Mean = Degrees of freedom =6

Q-4: Which of these distributions is used for a goodness of fit testing?

a) Normal distribution

b) Chi-squared distribution

c) Gamma distribution

d) Poisson distribution

ANS: b) Chi-squared distribution

Goodness-of-fit tests based on the Chi-squared distribution compare observed frequencies with expected frequencies to determine whether there is a significant difference between them.

Q-5) Which of the following distributions is Continuous.

a) Binomial Distribution

b) Hypergeometric Distribution

c) F Distribution

d) Poisson Distribution

ANS: c) F Distribution

The F distribution is a continuous probability distribution that arises frequently as the null distribution of a test statistic. It is used to test hypotheses about the ratio of variances or the ratio of means of two populations. The F distribution is continuous because it can take on any real value within a certain range.

Q-6) A statement made about a population for testing purpose is called?

a) Statistic

b) Hypothesis

c) Level of Significance

d) Test Statistic

ANS: b) Hypothesis

In statistics, a hypothesis is a statement or assumption about a population parameter that is subject to testing. It is typically formulated as a null hypothesis (H0) and an alternative hypothesis (H1). Hypothesis testing involves making inferences about population parameters based on sample data and assessing the evidence against the null hypothesis.

Q-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

ANS: a) Null Hypothesis

When a hypothesis is tested for rejection, considering it to be true, it's referred to as the null hypothesis (H0). The null hypothesis represents the default assumption.

Q-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

ANS: a) Two tailed

In hypothesis testing, a critical region is the set of values that lead to the rejection of the null hypothesis. When this critical region is divided evenly into two parts, one on each side of the distribution, it is referred to as a two-tailed test. This means that the hypothesis test is sensitive to deviations in both directions from the null hypothesis.

Q-9: Alternative Hypothesis is also called as?

a) Composite hypothesis

b) Research Hypothesis

c) Simple Hypothesis

d) Null Hypothesis

ANS: b) Research Hypothesis

The alternative hypothesis (H1 or Ha) is also referred to as the research hypothesis. It represents the opposite or alternative stance to the null hypothesis (H0). It asserts that there is a difference, effect, or relationship present in the population.

Q-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

ANS: a) np

In a binomial distribution, if n is the number of trials and p is the probability of success in each trial, then the mean value μ is given by:

$\mu = np$