***Questions on Hypothesis Testing***

1. An agriculture scientist wants to compare the amount of time taken to grow rice crop using two different fertilizers. After collecting the necessary data, which statistical test should he use?
   1. ANOVA (Analysis of Variance)
   2. P-Value
   3. **t-test**
   4. Chi-squared test
2. In a study related to COVID, a researcher wants to find out if there is any association between age-group and gender. After collecting the necessary data, which statistical test should she use?
   1. ANOVA (Analysis of Variance)
   2. P-Value
   3. t-test
   4. **Chi-squared test**
3. A nutritionist wants to check the effect of a new nutrition supplement in reducing body weight. For this, she chooses 50 people. She records the data of these people before and after giving nutritional supplement. Which statistical test should she use to compare these values?
   1. ANOVA (Analysis of Variance)
   2. Chi-squared test
   3. t-test
   4. **Paired t- test**
4. A researcher wants to compare the mileage given by four different brands of cars. Which statistical test would you recommend for his use?
   1. **ANOVA (Analysis of Variance)**
   2. Chi-squared test
   3. t-test
   4. Paired t- test
5. A data scientist concludes that there exists a significant difference between male and female employees of an organization with respect to financial investments with 95% Confidence. What could be the P-Value in his case?
   1. P>0.05
   2. **P<0.05**
   3. P>0.10
   4. None of the above
6. To make a decision in hypothesis testing, we compare
   1. P-Value with Confidence Interval
   2. P-Value with mean
   3. **P-Value with alpha**
   4. P-Value with standard deviation
7. A statistician disagrees with a research report which says that the average age of IT employees in India is 26 yrs. Which among the following options shows the decision he has taken
   1. Accept the Null Hypothesis
   2. **Reject the Null Hypothesis**
   3. Neither reject nor accept the Null Hypothesis
   4. None of the above
8. Alpha in hypothesis testing refers to
   1. Probability of committing Type II error
   2. Difference between each value and the mean
   3. Probability of committing Type I error
   4. Probability of an event
9. Which of the below mentioned symbol will be used in null hypothesis?
   1. ≠
   2. **=**
   3. >
   4. <
10. Which of the below mentioned symbols can be used in alternate hypothesis?
    1. ≠
    2. >
    3. <
    4. All the above
11. Type II error in hypothesis test is
    1. **Accepting the null hypothesis when it is false and should be rejected**
    2. Rejecting the null hypothesis when it is true and should be accepted
    3. Rejecting the null hypothesis when it is false and should be rejected
    4. Accepting the null hypothesis when it is true and should be accepted
12. Type I error in hypothesis test is
    1. Accepting the null hypothesis when it is false and should be rejected
    2. **Rejecting the null hypothesis when it is true and should be accepted**
    3. Rejecting the null hypothesis when it is false and should be rejected
    4. Accepting the null hypothesis when it is true and should be accepted
13. In hypothesis testing, the degrees for freedom will be
    1. n
    2. n+1
    3. **n-1**
    4. n-2