

### Quiz Question 1: Purpose of the Paired t-test

**Question:** What does the paired t-test specifically test for in matched pairs data?

**Options:** A) Whether the median difference between matched pairs is zero. B) Whether the mean difference between matched pairs is zero. C) Whether the variance between matched pairs is significant. D) Whether the correlation between matched pairs is significant.

**Correct Answer:** B) Whether the mean difference between matched pairs is zero.

### Quiz Question 2: Null Hypothesis in Paired t-test

**Question:** Which of the following is a correct formulation of the null hypothesis in a paired t-test?

**Correct Answer:** C)  $H_0: \mu_D = 0$  — where  $\mu_D$  is the mean of the differences between the pairs.

### Quiz Question 3: Assumptions of the Paired t-test

**Question:** Which assumption is crucial for the validity of the paired t-test results? **Options:** A) The differences between pairs follow a uniform distribution. B) The differences between pairs must not be independent. C) The differences between pairs follow a normal distribution. D) Each pair must come from different populations.

**Correct Answer:** C) The differences between pairs follow a normal distribution.

### Quiz Question 4: Interpretation of Paired t-test Results

**Question:** If a paired t-test results in a small p-value, what does it indicate about the null hypothesis? **Options:** A) The null hypothesis is strongly supported. B) There is insufficient evidence to support the null hypothesis. C) The null hypothesis is definitely false. D) The test is inconclusive.

**Correct Answer:** B) There is insufficient evidence to support the null hypothesis.

### Quiz Question 5: Paired t-test Practical Application

**Question:** In a paired t-test examining the effect of a new teaching method on test scores, what does a significant test result imply? **Options:** A) The new teaching method has no effect on test scores. B) The test scores are normally distributed. C) The new teaching method likely caused a change in test scores. D) The control group performed better than the experimental group.

**Correct Answer:** (A) and (C) The new teaching method likely caused a change in test scores.

These questions are tailored to test understanding of the paired t-test, its assumptions, and interpretations of its results as per the provided class materials.