CHAPTER 15

FILL-IN-THE-BLANK ITEMS

Introduction

A (1) _____ test is one in which population parameters such as μ and σ are not involved; they are also called (2) _____ _____ because no particular distribution is assumed. The tests discussed in this chapter are useful when (3) _____ of the parametric tests are likely to be violated and when the level of measurement is less than (4) _____ scale.

The Mann–Whitney *U* Test

The M–W test is a useful alternative to the (5) _____ _____ _____ _____ samples. The assumptions for the M–W are that the samples are (6) _____, that there is an underlying continuous scale of measurement, and that the measurement scale used is at least (7) _____ scale. The hypothesis tested is that the populations contributing to the samples are (8) _____ in shape.

In the M–W test, the scores from the two samples are (9) _____, and a statistic, the smaller of *U* or (10) _____, is computed. If the ranks are not evenly mixed, the samples probably come from different (11) _____. For samples with 20 or fewer subjects, the computed *U* (or *U*′) is compared with critical values in Table (12) _____. If the computed

statistic is (13) _____ than the critical value, H_0 is rejected. For samples larger than 20, U (or U') is converted to a (14) _____, and H_0 is rejected if z is (15) _____ or larger (two-tailed test at 5% level).

The Wilcoxon Matched-Pairs Signed-Ranks Test

The Wilcoxon test is a nonparametric alternative to the t test for (16) _____ samples. The assumptions are that the subjects must be (17) _____ and independently selected, that the measurement scale must be at least (18) _____, and that we must be able to rank-order the difference scores. The null hypothesis is that the population distributions are (19) _____.

Computation begins with finding the (20) _____ between each pair of scores, discarding all (21) _____ differences. The difference scores are (22) _____ ordered on the basis of absolute magnitude, and the (23) _____ of the differences is retained. The sum of the differences with the (24) _____ frequently occurring sign is found and called T. T is compared with critical values in Table I, and if T is equal to or (25) _____ than the critical value, H_0 is rejected. With large samples, $N = 25$ or greater, the distribution of T is approximately (26) _____, and the T score is converted to a (27) _____.

The Kruskal–Wallis One-Way ANOVA

The K–W test is an extension of the (28) _____ test and is used for comparing more than two groups when the assumptions underlying the (29) _____ cannot be met. At least (30) _____ scale measurement is required.

To perform the test, the combined groups are (31) _____, and the sum of the (32) _____ for each group is found. For three or more samples with at least five subjects each, the computed H is distributed approximately as (33) _____ _____, with df = (34) _____, where K is the number of groups.

Further Testing After a Significant *H*

After a significant result is found with the K–W test, the (35) _____ test can be used to make further group comparisons.

Troubleshooting Your Computations

Both the M–W and the K–W tests require (36) _____ the combined scores from lowest to highest. The rank of the highest score should be (37) _____ unless the top scores are tied. The value obtained for either *U* or *H* should be a (38) _____ number. In using the M–W test, the smaller of *U* and (39) _____ is used in the significance test.

With the Wilcoxon test, be sure to discard all (40) _____ differences. The difference scores are ranked in terms of (41) _____ value. Both the computed *T* and the computed *U* must be equal to or (42) _____ than the critical table values for H_0 to be rejected.