**Faculty of Psychology. Seville University**

**Psychometrics test. Partial 2. November 2018**

**Type B**

**GENERAL RULES FOR THE EXAM**

This exam consists of 10 questions with three response options (a, b and c) that must be answered by writing the option chosen on the answer sheet. Only one of the alternatives is correct. **The errors do not subtract score.** You have 45 minutes to do the exam

**Questions**

**With the following data, answer questions 1 - 4.**

The following table presents the psychometric properties of an item: difficulty, biserial correlation of each alternative and its percentage of response, as well as the correct answer alternative and the standard deviation of the item:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Ítem** | **Dificulty** | **% 1** | **rbis 1** | **% 2** | **rbis 2** | **% 3** | **rbis 3** | **Correct alternative** | **Sj** |
| 1 | 0’70 | 0’60 | 0’312 | 0’20 | -0’30 | 0’20 | 0’13 | 1 | 0’26 |

1. The reliability index of the item is:
2. 0’17
3. 0’08
4. 0’31
5. The item is:
6. Easy
7. Difficult
8. Medium level of difficulty
9. Among wrong alternatives of the item, we have to review alternative:
10. 3
11. 2
12. None
13. The homogeneity index of the item is:
14. 0’21
15. 0’31
16. 0’40

**With the following data, answer questions 5 - 7.**

A personality test is composed by three subtests. A extrovertion one with 15 items; a emotionally stability one with 25 items; and an adaptation one with 15 items. We applied that personality test to a sample of students. We obtained a global variance of 30, and the variances into each subtest were 10, 10 and 8 respectively.

1. Cronbach’s coefficient is:
2. 0’31
3. 0’21
4. 0’11
5. Raju’s coefficient is:
6. 0’35
7. 0’10
8. 0’45
9. Comparing α and β coefficients:
10. Different number of items in each subtest implies that α coefficient is better than β coefficient.
11. Same number of items in each subtest implies that β coefficient is the same to α coefficient.
12. β coefficient is always the same to α coefficient.

**With the following data, answer questions 8 - 10.**

The correlation between measurement errors and empirical scores in a test is 0.30. Its variance is 49. A participant obtained a score of 12 in the test.

1. Using the method of the normal distribution of errors calculate, with a confidence level of 90%, the interval that contains the true score of that participant in the test, in raw scores:
2. 7’88 - 13’12
3. 8’56 – 15’44
4. None
5. Using the method of Chebychev’s inequality, and considering α: 0’01,estimate the confidence interval of the true score of that participant in the test, in raw scores:
6. -9 – 33
7. 9 – 33
8. None
9. The mean in the test is 10; using the regression method, calculate, with a confidence level of 95%, the interval that contains the true score of that participant in the test, in raw scores:
10. 7’90 – 15’74
11. 6’66 – 16’98
12. None

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**ANSWERS SHEET TYPE B**

|  |  |
| --- | --- |
| Nº | **Option** |
| 1 | B |
| 2 | A |
| 3 | A |
| 4 | B |
| 5 | C |
| 6 | B |
| 7 | B |
| 8 | B |
| 9 | A |
| 10 | A |