SCHOOL OF PSYCHOLOGY **UNIVERSITY OF SEVILLE**
PSYCHOMETRICS.
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Partial 2

Name: _____
Number of identification: _____

Exercise 1. We believe that incorrect alternatives of an item in a Psychometrics exam are not equiprobable. The following table shows the frequency of subjects that selected each alternative of the item, where C is the correct one. Determine whether the incorrect alternatives are statistically equiprobable with a confidence level of 95% (2 points).

A	B	C*
29	47	240

Exercise 2. The following table shows psychometric characteristics of 3 items: difficulty, discrimination, the percentage of answers and the biserial correlation to each option (2 points).

Items	Difficulty	Discrim.	% 1	rbis 1	% 2	rbis 2	% 3	rbis 3	Correct
1	0	-0.057	0.60	0.30	0.30	-0.087	0.10	0.011	2
2	0.314	0.621	0.10	-0.040	0.60	0.528	0.30	-0.193	2
3	0.128	0.293	0.55	0.301	0.20	0.010	0.45	-0.006	1

a) Based on difficulty and discrimination, analyze the psychometric quality of each item.
b) Based on answers distribution and biserial correlations, identify which alternatives are not working properly. Explain your answer.

Exercise 3. We have applied a parallel 45-item test on a sample of 300 students. The standard deviation of empirical scores is 5, the standard deviation of errors is 3 and the mean of the test is 20. Calculate: (2 points).

a) The reliability index.
b) The confidence interval of the differential true score of a subject who obtained 25 as raw empirical score (C.L. 99%)

Exercise 4. The results of 10 subjects in a test composed of 5 items are showed in the table below. 1 is success and 0 failure (2 points).

Subjects	A	B	C	D	E
1	0	0	0	1	1
2	1	1	1	0	0
3	1	1	1	0	1
4	0	0	1	0	1
5	0	0	0	0	0
6	0	1	1	0	1
7	0	1	0	1	1
8	1	1	1	1	1
9	1	1	1	1	1
10	1	1	1	1	0

a) Calculate the reliability index.
b) How many items should be added if you would like to obtain a reliability coefficient of 0.80?