1st STATISTICS EXAM Answer Keys

Exercise 1 (7.5 pts)**:** Determine whether the following statements are true (T) or false (F) and correct the false statements.

N°	Statements	T/F
1	Chi-Square for Goodness of Fit is used when you want to check if the counted frequencies of categorical data match the frequencies set by the research hypothesis.	T
	…………………………………………………………………………………………………… ……………………………………………………………………………………………	1.5
2	Cramer's V is a statistical test used to validate a hypothesis based on the association of two or more variables.	F
	Cramer's V is a test of the strength of association.	1.5
3	When you collect continuous data in order to investigate the association between a dependent and an independent variable, you will have to run Chi-Square for independence test.	F
	When you collect continuous data in order to investigate the association between a dependent and an independent variable, you will have to conduct a regression analysis.	1.5
4	When collecting secondary data, researchers observe and record behaviours, actions, or events in their natural settings.	F
	When collecting primary data, researchers observe and record behaviours, actions, or events in their natural settings.	1.5
5	Non-Parametric data often include rank-ordered data and measurements that do not have equal intervals.	T
	…………………………………………………………………………………………………… ……………………………………………………………………………………………	1.5

Exercise 2 (7.5 pts)**:** Indicate what test is most suitable for the following research questions.

RQ1: Are there significant changes in the frequency and distribution of linguistic markers in narratives before and after a language intervention for individuals with language disorders? **1.5**
- a- t-test
- b- Chi-square for goodness of fit
- **c- Wilcoxon signed-rank test**
- d- Chi-square homogeneity test

RQ2: Is there a significant relationship between parental involvement in students' education and the development of positive learning attitudes in Algerian secondary school students? **1.5**
- a- ANOVA
- **b- Chi-square test of independence**
- c- Kruskal- Wallis test
- d- Pearson's coefficient of correlation

RQ3: Does the exposure to the Berber dialect during childhood have a significant impact on the pronunciation patterns of individuals within a multilingual society? **1.5**
- a- Regression
- b- Mann-Whitney U test
- c- Brown and Smythe's test
- **d- t-test**

RQ4: Does the presentation format (textual vs. visual) of linguistic stimuli influence the response times in lexical retrieval tasks among participants with varying language proficiency levels? **1.5**

    a- **ANOVA**   c- Chi-square for goodness of fit test

    b- Mann-Whitney U test   d- *t*-test

RQ5: Does the frequency of code-switching behaviors in bilingual speakers align with the expected distribution based on linguistic theories of code-switching? **1.5**

    a- Brown and Smythe's test   c- **Chi-square for goodness of fit test**

    b- Chi-square test of independence   d- Correlation

Exercise 3 (5 pts)**:** Analyse the table below and answer the following questions. (**Circle the letter corresponding to your answer.**)

Heading: SYMMETRIC MEASURES

		Value.	Approx. Sig.
Nominal by nominal	Phi	.286	.045
	Cramer's V	.286	.045
Number of valid cases		883	

1- What is the heading for the table? **(1)**

2- For which statistical test (s) the table could have been generated? **(2)**

    a- *t*-test

    b- Chi-square for independence

    c- ANOVA

    d- Spearman's Rank Correlation test

3- What interpretation(s) would be most relevant to the displayed values? **(2)**

    a- There is no association between the variable under investigation.

    b- The variables are weakly associated to each others.

    e- The relationship between the variables is moderate.

    c- There is a strong association between the variable under investigation.