1st REPLACEMENT EXAM IN STATISTICS_Answers Key

Exercise 1 (15 pts)**:** Indicate what test is most suitable for the following research questions.

RQ1: Is there a significant difference in the use of discourse markers in spontaneous conversations between individuals with high and low levels of language anxiety? **(1)**

a- *t*-test
b- Chi-square for goodness of fit
c- Wilcoxon signed-rank test
d- Chi-square homogeneity test

RQ2: Is the frequency of using certain speech acts (e.g., apologies, compliments) dependent on the cultural background of the speaker? **(1)**

a- *t*-test
b- Regression
c- Chi-square test of independence
d- ANOVA

RQ3: Is there a significant association between teaching methods (traditional vs. modern) and student engagement levels in Algerian primary schools? **(1)**

a- ANOVA
b- Chi-square test of independence
c- Kruskal- Wallis test
d- Pearson's coefficient of correlation

RQ4: Does the implementation of a new language curriculum result in a significant shift in the vocabulary richness of elementary school students over an academic year? **(1)**

a- Wilcoxon signed-rank test
b- Brown and Smythe's test
c- Pearson's coefficient of correlation
d- *t*-test

RQ5: Do individuals from different socio-economic backgrounds exhibit significant variations in their use of language registers in formal and informal settings? **(1)**

e- Regression
f- Mann-Whitney U test
g- Brown and Smythe's test
h- *t*-test

RQ6: Do individuals with varying levels of working memory capacity show significant differences in their ability to process syntactically complex sentences? **(1)**

a- ANOVA
b- Mann-Whitney U test
c- Chi-square for goodness of fit test
d- *t*-test

RQ7: What is the relationship between the level of complexity of texts translated using AI and the improvement in students' translation skills? **(1)**

a- Mann-Whitney U test
b- Kruskal-Wallis test
c- Chi-square test of independence
d- Regression

RQ8: Is there a significant connection between the implementation of inclusive education practices and the social integration of students with diverse learning needs in Algerian educational settings? **(1)**

a- ANOVA
b- *t*-test
c- Kruskal- Wallis test
d- Chi-square test of independence

RQ9: Does the observed frequency of grammatical errors in spontaneous speech deviate significantly from the expected frequency based on linguistic norms? **(1)**

a- Brown and Smythe's test
b- Chi-square test of independence
c- Chi-square for goodness of fit test
d- Pearson's coefficient of correlation

RQ10: Is there a significant difference in language attitudes and preferences between speakers of different genders within a specific cultural context? **(1)**

a- ANOVA
b- Kruskal- Wallis test
c- Brown and Smythe's test
d- *t*-test

RQ11: Are there significant differences in the neural activation patterns associated with semantic processing among speakers of different languages during a language comprehension task? **(1)**

a- ANOVA
b- Mann-Whitney U test
c- Chi-square for goodness of fit test
d- *t*-test

RQ12: Does the distribution of errors in a sentence recall task differ significantly from what would be expected by chance, considering the influence of working memory constraints? **(1)**

a- Wilcoxon signed-rank test
b- Regression
c- Chi-square for goodness of fit test
d- Pearson's coefficient of correlation

RQ13: Do readability scores derived from computational linguistic models correlate with human judgments of text complexity across different genres and domains? **(1)**

a- Spearman coefficient of correlation
b- Wilcoxon signed-rank test
c- Regression
d- Brown and Smythe's test

RQ14: Does the integration of AI translation tools into language teaching curricula predict changes in students' language proficiency over time? **(1)**

a- *t*-test
b- Regression
c- ANOVA
d- Brown and Smythe's test

RQ15: Is there a significant difference in the use of politeness strategies between male and female speakers in formal meetings? **(1)**

a- Kruskal-Wallis test
b- Chi-square test of independence
c- ANOVA
d- Spearman coefficient of correlation

Exercise 2 (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	.315	.013
	Cramer's V	. 315	.013
Number of valid cases		312	

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
e- Linear Regression
f- Chi-square for goodness of fit
g- None of the them
h- All of them

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.
c- The relationship between the variables is moderate.
d- **There is a strong association between the variable under investigation.**