OEB University
Department of English
Master 2 Level
Teacher: L. Benhamlaoui

Duration : 1h 30min

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2nd EXAM IN STATISTICS_Answers Key

Exercise 1 (6 pts): Determine whether the following statements are true (T) or false (F) and correct the false statements.

N°	Statements	T/F
1	The paired-sample t-test is used to compare the performance of students before and after they receive a specific treatment for several weeks in order to examine the effectiveness of a reading comprehension program.	T
	…… …… ……	(02 pts)
2	Because the Independent-samples t-test is used to compare groups of the same people, it assumes both the approximate equality of variances in these populations (homogeneity of variance) and the independence of scores as they come from the same individuals.	F **(01 pt)**
	Because the Independent-samples t-test is used to compare different groups of people, it assumes both the approximate equality of variances in these populations (homogeneity of variance) and the independence of scores as they come from different individuals.	**(01 pt)**
3	In testing normality, graphical methods rely on objective judgment by assessing plots or graphs, while numerical tests offer subjective assessment; however, graphical models may lack sensitivity for small sample sizes and can become overly sensitive for larger sample sizes.	F **(01)**
	In testing normality, graphical methods rely on subjective judgment by assessing plots or graphs, while numerical tests offer an objective assessment; however, numerical tests may lack sensitivity for small sample sizes and can become overly sensitive for larger sample sizes.	**(01 pt)**

Exercise 2 (10 pts): determine the most suitable statistical test for each of the following hypotheses/research question.

H1: ESL learners would demonstrate a significant improvement in their ability to recognize and apply grammatical structures after engaging in reading comprehension tasks with embedded grammar instruction. (02 pts)

a- Independent-sample *t*-test
b- ANOVA
c- Mann-Whitney U test
d- Paired-sample *t*-test

RQ2: What is the effect of three different therapeutic interventions (e.g., cognitive-behavioral therapy, mindfulness-based therapy, psychodynamic therapy) on reducing symptoms of anxiety in young adults? (02 pts)

a- ANOVA
b- Independent-sample *t*-test
c- Kruskal- Wallis test
d- Pearson's coefficient of correlation

RQ3: How does the use of task-based language teaching (TBLT) compared to traditional grammar-based instruction influence the motivation levels and oral production skills of EFL learners in a university setting? (02 pts)

a- Regression
b- Mann-Whitney U test
c- Independent-sample *t*-test
d- ANOVA

H4: There will be a significant difference in perceived job satisfaction between teachers in public and private schools, as measured by responses on standardized job satisfaction surveys. (02 pts)

a- ANOVA
b- Mann-Whitney U test
c- Chi-square test
d- Independent-sample *t*-test

H5: There will be a significant difference in the effectiveness of corrective feedback provided by native-speaking teachers and non-native speaking teachers in improving second language learners' oral proficiency, with native-speaking teachers showing greater effectiveness in facilitating improvement. (02 pts)

a- Brown and Smythe's test
b- Chi-square test of independence
c- Chi-square for goodness of fit test
d- Independent-sample *t*-test

Exercise 3 (4 pts): Analyse the table below and answer the following questions. (**Circle the letter corresponding to your answer.**)

Heading: Independent-Sample *t*-test

		T	df	Sig. (1-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Motivation level	Equal variances assumed	-2.714	26	.070	-2.000	.737	-3.515	-.485
	Equal variances not assumed	-2.714	24.978	.070	-2.000	.737	-3.518	-.482

1- What is the heading for the table? **(01 pt)**

2- What type of hypothesis was adopted in this research? **(01 pt)**

A directional Hypothesis

3- For which statistical test the table could have been generated? **(01 pt)**

a- Independent-Sample *t*-test
b- Spearman's Rank Correlation test
c- Paired-Sample *t*-test
d- ANOVA

4- What interpretation would be most relevant to the displayed values? **(01 pt)**

a- The two treatments proved similar in developing the research outcome.
b- There is no association between the variable under investigation.
c- Both of the investigated conditions failed in developing the participants' motivation.
d- There is a significant statistical difference between the two conditions.

Good luck