UNIVERSITY OF BATNA1 –HADJ LAKHDAR –
FACULTY OF ECONOMICS, BUSINESS AND MANAGEMENT SCIENCES
DEPARTMENT OF MANAGEMENT
SPECILITY: FINANCIAL MANAGEMENT (BMD3)
COURSE: PRELIMINARY APPLICATIONS IN DATA ANALYSIS
(مقياس: التطبيقات الأولية لتحليل المعطيات)
TEACHER: DR. L. BOUSSAAD

TYPICAL CORRECTION (S5)

PART: 01 [11 POINTS]

Q1- How to perform the following operations in SPSS: **س1- كيفية تنفيذ العمليات التالية في برنامج SPSS:**

- **Open an Excel data file (01)** **- فتح ملف بيانات Excel**

Answer: Open an Excel data file containing:
- The variable names (not the labels) in the first row.
- The rows below the names represent cases (one case (or individual) per line).

To do this, go to **File** -> **Open** -> **Data** -> in the field: "**File of type**", choose **Excel (*.xls, *.xlsx, *.xlsm),** click on the Excel file to open, then click on the **OPEN** button. A dialog box will appear, in which the option: "**Read variable names from first row of data**" is checked by default -> click **OK**.

- **Sort cases (01.5)** **- فرز أو ترتيب حالات**

Answer: **Data** -> **Sort Cases...** -> In the dialog box, move the **sorting variable(s)** to the **"Sort by"** field -> choose the sorting order (**ascending or descending**) -> click **OK.**

- **Select a random sample of cases (01.5)** **- اختيار عينة عشوائية من الحالات**

Answer: **Data** -> **Select Cases** -> select the option: "**Random sample of cases**" -> click the **Sample...** button -> choose the **sample size** -> click the **Continue** button -> click **OK**.

Q2- Let the result displayed by SPSS be: **س2- لتكن النتيجة التي يظهرها برنامج SPSS:**

NPar Tests

One-Sample Kolmogorov-Smirnov Test

		Current Salary
N		23
Normal Parameters[a,b]	Mean	$33,643.91
	Std. Deviation	$15,030.502
Most Extreme Differences	Absolute	,260
	Positive	,260
	Negative	-,203
Test Statistic		,260
Asymp. Sig. (2-tailed)		,000[c]

1 2

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.

A. Write the SPSS command that allows obtaining this result **(02)**

أ. أكتب تعليمة SPSS التي تسمح بالحصول على النتيجة السابقة

Answer: **Analyze** -> **Nonparametric tests** -> **Legacy dialogs** -> **1-sample K-S...**

B. In what case(cases) do you use this command? **(01)**

ب. في أي حالة (حالات) تستخدم هذه التعليمة؟

Answer: This command allows for performing the Kolmogorov-Smirnov (K-S) test. The K-S test examines whether a variable follows a given distribution (ex: Normal, Uniform, Poisson, Exponential) in a population.

C. Specify the name (or names) of the variable(s) of analysis? **(01)**

ت. حدد اسم (أو أسماء) متغير (أو متغيرات) التحليل

Answer: There is one variable: **Current Salary**

D. In the result, what does 23 represent? (see **1** in the figure) **(01)**

ث. ماذا يمثل العدد 23 في النتيجة ؟ (الرقم 1)

Answer: 23 is the total count.

E. Interpret the result labeled with label **2** , justify your answer. **(02)**

ج. فسر النتيجة 2 ، مع تبرير الإجابة

Answer: In this result, the command is used to test normality.

According to result **2:** Current Salary is not normally distributed in the population.

Justification: [Significance (sig.) = 0.00 < 0.05] => Reject the null hypothesis (H0) of normal distribution.

PART: 02 [09 POINTS]

- In a nutritional study aimed at evaluating the impact of a dietary change on participants' weight, 15 individuals were included. The weights (Kg) before and after the diet change for each participant are presented in the following table:

- **في إطار دراسة حول التغذية، تهدف إلى تقييم تأثير التغيير في النظام الغذائي على وزن المشاركين، تم استضافة 15 فردًا. يوضح الجدول التالي أوزان كل مشارك قبل وبعد التغيير في النظام الغذائي:**

Participant	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15
Weight before	70	65	72	68	75	60	68	81	73	66	69	62	77	82	71
Weight after	68	63	70	66	73	58	65	77	69	64	66	59	75	78	69

Q1- Give all the necessary variables to input this data (specify for each variable, the **type**, and the **measure** attributes). **(01)** **س1- عين جميع المتغيرات الضرورية لإدخال هذه البيانات (حدد لكل متغير نوعه وقياسه)**

Answer:

	Name	Type	Measure
Variable 1	Weight_before	Numeric	Scale
Variable 2	Weight_after	Numeric	Scale

Q2– Specify the statistical hypotheses. **(02)** **س2- عين الفرضيات الإحصائية**

Answer:

H0: $\mu 1 = \mu 2$

H1: $\mu 1 \neq \mu 2$

Where μ1 is the population mean of Variable 1 (Weight_before), and μ2 is the population mean of Variable 2 (Weight_after).

Q3– Specify data characteristics (**Number of samples - Sample sizes - Paired or independent samples**). **(02)** **س3- حدد خصائص البيانات (عدد العينات - حجم العينات - هل هي عينات مرتبطة أم مستقلة)**

Answer:

Number of samples =2

Sample size = 15

Paired samples

Q4– What is the appropriate statistical test to use? **(01)** **س4- ما هو الاختبار الإحصائي المناسب؟**

Answer: **Paired-samples T test.**

Q5– What are the necessary conditions (data requirements) to conduct this test? **(01)**

س5- ما هي الشروط الضرورية لإجراء هذا الاختبار؟

Answer:

- Continuous dependent variable (i.e. scale measure)
  (Paired measurements should be saved in two separate variables).
- Related samples (i.e., dependent observations). The observations from the first sample are also present in the second sample.
- Approximate normal distribution of the differences between paired values.
- No extreme values in the difference between the two groups.

Q6– Write the SPSS command required to perform this test. **(02)**

س6- اكتب تعليمة SPSS التي تسمح بإجراء هذا الاختبار

Answer:

Analyze -> **Compare Means** -> **Paired-Samples T Test...**Select the Weight _before variable and place it into the Variable1 location within the **Paired variables** area. Then select the Weight_after variable and move it to the Variable2 location within the **Paired Variables** area. Click **OK**.