UNIVERSITY OF BISKRA	DEPARTMENT OF ENGLISH	M2 - STATISTICS	EXAM			
FULL NAME:		_ DATE: January, 6 th , 2025 TIME: 90 minutes	20			
 ACTIVITY ONE (6 points) Tick (✓) the correct answer: 						
 # A measure of central te Standard deviation Variance Median Range 	ndency: 0 0 0	P = .023 in the Levene's test The means are significantly diffe The means are not significantly The variances are significantly d The variances are not significant	means that: erent different <mark>ifferent</mark> tly different			
 # A scatter plot visualizes The strength of a causal re The strength of a linear re All of the above None of the above 	# elationships lationship O	Dataset: (21, 15,4, 24, 7, 23, 24 7 24 18 7 and 24	, 7) the median is:			
 # A non-directional hypor Positive Negative All of the above None of the above 	thesis is:	A Type 2 error happens when Accept a true null hypothesis Reject a true null hypothesis Accept a false null hypothesis Reject a false null hypothesis	n we:			

ACTIVITY TWO (6 points)Write the corresponding concept for each definition below:

A parametric test for comparing the means of more than two	
related samples	Repeated Measures ANOVA
A measure of how often an event takes place	Frequency
Continuous numerical data type where the difference between	
values is meaningful with a zero value	Ratio Data
A sampling method where the population is divided into	
subgroups, and participants from each subgroup are recruited	Quota Sampling
based on availability	
Data with a natural order but unequal intervals (e.g., Likert	
scales)	Ordinal Data
A statistical test used to determine the extent to which data	Shanira Wilk Tast / Kalmagaray Smirnay
are normally distributed	
	Test

ACTIVITY THREE (8 points)

• Use the table and formula below to <u>calculate</u> and <u>interpret</u> the effect size:

	n	Mean	Standard Deviation
Group 1	5	43.40	10.60
Group 2	5	37.40	12.58

Cohen's *d*:

$$d = \frac{\overline{x_1 - x_2}}{SD_{Pooled}}$$

Where:

$$SD_{Pooled} = \sqrt{\frac{(n_1 - 1)SD_1^2 + (n_2 - 1)SD_2^2}{n_1 + n_2 - 2}}$$

Calculation (Report final results only):

<u>STEP 1</u>: $\bar{x}_1 - \bar{x}_2 = \dots 6.00$ <u>STEP 2</u>: $(n_1 - 1)SD_1^2 + (n_2 - 1)SD_2^2 = \dots 1082.48$ <u>STEP 3</u>: $n_1 + n_2 - 2 = \dots 8$ <u>STEP 4</u>: $\sqrt{\frac{1082.48}{8}}$ <u>STEP 5</u>: $\sqrt{135.31}$. <u>STEP 6</u>: $SD_{Pooled} = 11.63$

<u>STEP 7</u>: d = 0.52

Interpretation:

Based on the *d* value, the effects size is: **medium effect size**