AS1(Assignment 1, Unit 5) Independent Measures t-test
Please write your responses in red ☺

A pharmaceutical company wishes to test the effects of a herbal supplement on anxiety levels. The researcher randomly selects a sample of n=16 adults from Essex County. The sample is randomly assigned to either the herbal supplement, Group B or a placebo, Group A.

Here are the data:

GROUP "A"	GROUP " B "
12, 16, 18, 21,	13, 18, 20, 16
17, l8, l8, 19	19, 21, 19, 22

l. What is the researcher's hypothesis?

Hα: The test effects of an herbal supplement have on anxiety levels.

2. What is the null hypothesis?

Ho: The tests effects of an herbal supplement have no effects on anxiety levels.

3. What is the independent variable?

The Herbal Supplement

4. What is the dependent variable?

Effects on Anxiety Level

5. What is the name of the _research design_ in this study?

Experimental Study

6. What is the appropriate *hypothesis test* to analyze the data from this study?

Two Independent sample T test.

7. What are the two mean "differences" you are analyzing in these data?

The two mean differences that are being analyzed in this data is sample mean of Group A and sample mean of Group B.

8. What is the definition of a random assignment?

Random of assignment is a way of placing participants from your sample into different groups using a control group and Experimental group. With this method, every member of the sample has unknown or equal chance of being placed in a control group or an experimental group.

9. Why is using a random sample important in this study?

Random sampling makes sure that results obtained from your sample should approximate what would have been obtained if the entire population had been measured. It allows the researcher to assume that the sample represents the population.

10. If a researcher failed to use random assignment, how would this affect the research conclusion?

If a researcher failed to use random assignment which is a way of placing participants from your sample into different groups using randomization. If this method is not used, then every member of the sample does not have a known or equal chance of being placed in a control group support an experimental group to determine a result.

11. If a researcher failed to use a random sample, how would this affect the research results?

If a researcher fails to use random sampling the researchers would not be able to study the entire population directly, so they use samples. It helps to generalize (infer) the results of the study based on th e sample. Random sampling is important because it allows the researcher to assume that the sample represents the population.

12. Run the appropriate SPSS analysis on the data and cut and paste your SPSS results here:

Independent Samples Test

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | | |
| | | | | | | Significance | | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
		F	Sig.	t	df	One-Sided p	Two-Sided p			Lower	Upper
VAR00001	Equal variances assumed	.149	.705	-.818	14	.213	.427	-1.12500	1.37500	-4.07408	1.82408
	Equal variances not assumed			-.818	13.873	.214	.427	-1.12500	1.37500	-4.07661	1.82661

Group Statistics

	VAR00002	N	Mean	Std. Deviation	Std. Error Mean
VAR00001	1.00	8	17.3750	2.61520	.92461
	2.00	8	18.5000	2.87849	1.01770

13. Based on your SPPS results please answer the following questions :

Independent Samples Test

| | | Levene's Test for Equality of Variances | | | | Significance | |
		F	Sig.	t	df	One-Sided p	Two-S
VAR00001	Equal variances assumed	.149	.705	-.818	14	.213	
	Equal variances not assumed			-.818	13.873	.214	

(a) What is the appropriate decision, reject the null or fail to reject the null? Fail to reject the null. There was no effect of an herbal supplement on anxiety level.

(b) Write the "statistical statement" of your SPSS analysis: t = (14) -.818, p>.05

(c) Please write your results as they might be written in a research study (refer to the "In the Literature" section of chapter lo of your textbook). Placebo Group A M=17.3 with a SD=2.61 and Group B M = 18.5 with a SD = 2.87 Significance value = 427 which is not significant at .05 level of significance fail to reject null hypothesis. Since, p value 0.427 is not significant at .05 level of significance. t= (14)-.818, p ..05

(d) Is there a probability of Type I error? Yes _____   No _____X_

(e) Is there a probability of Type II error? Yes__X__ No_____