

AS4 (Assignment 4, Unit 5)

SECTION I:

A randomized study on n=50 rats tested whether living in a crowded situation had an effect on stress levels. Based on this information, please answer questions 1-6

1. What is the researcher's hypothesis?

2. What is the null hypothesis?

3. What is the independent variable? _____

4. What is the dependent variable? _____

5. What research design appears apparent here? _____

6. What is the appropriate hypothesis test? _____

A researcher wishes to know whether a newly developed teaching method has an effect on 5th grading reading scores. A sample of 5th graders are given a standardized test at the beginning of the school year and retested at the end of the school year. Based on this scenario, answers questions 7-12.

7. What is the researcher's hypothesis?

8. What is the null hypothesis?

9. What is the independent variable? _____

10. What is the dependent variable? _____

11. What is the name of the "research design? _____

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

SECTION II:

13. What is the definition of a random sample?

14. What is the definition of random assignment?

15. Imagine that the researcher failed to use a random sample. How would this failure limit her study's conclusions?

16. Imagine that the researcher failed to use random assignment in her study. How would this limit her research conclusions?

17. No matter what hypothesis test you are using, there are two basic "differences" that you are analyzing in ALL hypotheses tests. What are these two "differences"?

1. _____

2. _____

18. What is meant by the term "statistical significance"?

SECTION III:

A researcher tested whether drinking caffeine had an effect on anxiety. Below is an SPSS printout from an “independent measures t-test for the data he collected:

Group Statistics

	VAR00002	N	Mean	Std. Deviation	Std. Error Mean
VAR00001	1.00	6	4.8333	1.16905	.47726
	2.00	6	8.3333	.81650	.33333

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
VAR00001	Equal variances assumed	.537	.481	-6.012	10	.000	-3.50000	.58214	-4.79709	-2.20291
	Equal variances not assumed			-6.012	8.940	.000	-3.50000	.58214	-4.81824	-2.18176

19. Please write the “statistical statement” for the above SPSS results:

Answer: _____

20. What decision did you make at end of this test? _____

21. Are the data significant? Yes_____ or No _____

22. Please write up the complete results for the above test:

A researcher tested whether a particular lecture would have an effect on motivation. Below is an SPSS printout of a Paired Samples Test she used to analyze her data:

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	VAR00001	4.1250	8	1.45774	.51539
	VAR00002	5.0000	8	2.00000	.70711

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	VAR00001 - VAR00002	-.87500	2.10017	.74252	-2.63079	.88079	-1.178	7	.277

22. Please write the “statistical statement” for the above SPSS results:

Answer: _____

23. Did you reject or fail to reject the null hypothesis? _____

24. Is this a within or between subject design? _____

25. Are the data significant? Yes_____ No_____

26. Is there a probability of Type I Error? Yes_____ No_____

27. Please write up the research results for the above:
