PSYC 2317 Assignment 3

This assignment has eight items each of which is worth 10 points. Please type your answers and show your work (by hand is fine) when required. Submit a single document that contains both your typed answers and written work no later than October 20th by 5:30 PM.

---

1. Explain how a researcher would establish t_{cv}. Be sure to discuss how each influences the size of the rare zone.

2. Define a confidence interval, and explain why it is reported. What does the interpretation of confidence intervals focus on?

3. Explain the difference between independent samples and paired samples. Provide one guideline for determining whether the samples are independent and one guideline for determining if one's sample is paired.

4. Discuss the assumption regarding the independence of observations in a paired-samples *t* test. How robust is this assumption if it is violated when conducting a paired-samples *t* test?

5. Kyle read a news report that said that the average American went fishing 3.5 times per year. Kyle wants to test whether the people in his hometown fish more than the national average. He collects data from a random sample of 100 local residents (only 1 per household) and finds that the people in his hometown fish an average of 4.10 times per year, with a standard deviation of 1.50. Setting alpha at .05 and using a one-tailed test, determine if the people in Kyle's hometown fish more than the Americans in general and report the results in APA style. Be sure to include information about effect size.

6. Kay is interested in determining whether accelerated general psychology courses result in different learning outcomes compared to general psychology courses taught during a 15-week semester. To determine the effects of time, Kay administers a surprise end-of-course exam to the students in both classes and compares the means of the two groups. The mean test grade of the students in the accelerated course is 55 (s = 29.25), and the mean test grade of the students in the general course is 65 (s = 27.50) in the 15-week course. If s_{M1-M2} = 5.04 (equal variance between groups), s^2_{pooled} = 807.10, N_1 = 65, N_2 = 62, and alpha is set at .05, what decision should Kay take about the null hypothesis? Report the results in APA style and be sure to include information about effect size.

7. The table represents a series of critical values for a paired-samples *t* test.

Degrees of Freedom	One-Tailed α = .05	One-Tailed α = .01	Two-Tailed α = .05	Two-Tailed α = .01
28	1.701	2.467	2.049	2.764
29	1.699	2.462	2.045	2.757
30	1.698	2.458	2.043	2.750

A. If there are 29 cases in a paired-samples *t* test, what is t_{cv} for a one-tailed test with α = .01?

B. If there are 30 cases in a paired-samples *t* test, what is t_{cv} for a two-tailed test with α = .01?

C. If there are 31 cases in a paired-samples *t* test, what is t_{cv} for a two-tailed test with α = .05?

8. Dr. Cy has completed an experiment that tested whether relaxing in a warm room was more effective than relaxing in a cool room. He compared the respiration rates (per minute) of a few pairs of participants (who had been matched on their trait levels of stress) after they had each been in a warm or cool room for 15 minutes. He reported his results as follows: $M_{warm} = 20$, $M_{cool} = 13$, $t(44) = 4.76$, $p < .001$. Use this information to answer these questions.

A. What kind of statistical test was run?
B. How many participants were in the study? How many pairs?
C. What did Dr. Cy conclude about the effectiveness of relaxing in a warm or cool room?
D. What is the percentage chance of Type I error in this finding?