**PSYC 2019H: REVIEW ASSIGNMENT (Winter 2021)**

**Due: April 11th at 11:59pm**

Last Name, First Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Answer the following questions, being sure to r**ound to 2 decimals at each step in your calculations**. Show your work in the table below (or upload a separate sheet if needed). Record all answers in the spaces provided. Save this Word document, with your answers, as your last name\_first name (eg. Exotik\_Joe) and upload it to the Blackboard REVIEW ASSIGNMENT Dropbox.

**SECTION 1**

Below is a sample of 10 numbers:

|  |  |  |
| --- | --- | --- |
| **X** | **x-** | **(x-)2** |
| 63 |  |  |
| 15 |  |  |
| 42 |  |  |
| 7 |  |  |
| 25 |  |  |
| 53 |  |  |
| 18 |  |  |
| 5 |  |  |
| 72 |  |  |
| 37 |  |  |

1.1 What is the mean: \_\_\_\_\_

1.2 What is the median: \_\_\_\_\_

1.3 What is the mode: \_\_\_\_\_

1.4 What are the degrees of freedom: \_\_\_\_

1.5 What is the standard deviation: \_\_\_\_

**SECTION 2**

2.1 Given the following pairs of data for mothers’ and fathers’ ratings of their child’s behavior problems, what type of correlation would you expect? Explain your answer.

|  |  |  |
| --- | --- | --- |
|  | **Child Behavior Problem Score** | |
|  | **Mother’s Rating** | **Father’s Rating** |
| **Family 1** | 60 | 70 |
| **Family 2** | 55 | 50 |
| **Family 3** | 30 | 30 |
| **Family 4** | 45 | 40 |
| **Family 5** | 95 | 100 |
| **Family 6** | 75 | 75 |
| **Family 7** | 50 | 55 |
| **Family 8** | 100 | 90 |
| **Family 9** | 25 | 30 |

2.2 Calculate the correlation coefficient for the previous data. Is it significant? Write a brief statement to explain the results.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**SECTION 3**

3.1 Given the following values, calculate the regression equation.

|  |  |
| --- | --- |
| **Age of car (years)** | **Mileage** |
| 1.00 | 40.00 |
| 1.00 | 25.00 |
| 2.00 | 37.00 |
| 2.00 | 35.00 |
| 3.00 | 36.00 |
| 3.00 | 35.00 |
| 4.00 | 32.00 |
| 5.00 | 30.00 |
| 6.00 | 25.00 |
| 10.00 | 20.00 |

3.2 Given this regression equation, = .3 *X* + 25, estimate the values of X given the following values of Y:

a) Y = 0 \_\_\_\_\_\_\_

b) Y = 25 \_\_\_\_\_\_\_

c) Y = -30 \_\_\_\_\_\_\_

3.3 Write a sentence interpreting the regression data in the following table.

  
Dependent variable: Child Behavior Problem Score

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3.4 Answer the following questions based on the regression data in the previous table:

a) What percent of variability in behavior problems is accounted for by anger? \_\_\_\_\_\_

b) What percent of variability in behavior problems independent of anger? \_\_\_\_\_\_

**SECTION 4**

4.1 Indicate whether or not the following Chi-square statistics are significant:

a) 2.75; k =2 \_\_\_\_\_\_\_\_\_\_

b) 11.00; k =5 \_\_\_\_\_\_\_\_\_\_

c) 12.40; df = 6 \_\_\_\_\_\_\_\_\_\_

4.2 A social worker has been asked to testify before her state legislature about the impact of long-term foster care on child outcomes and government spending. She knows that 60% of children who remained in the foster care system without being adopted ended up in prison. The figure for foster care children who were eventually adopted was 25%. These data were based on 500 children who remained in foster care and 800 children who were eventually adopted. Calculate and interpret Chi-square.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4.3 Calculate and interpret the *z* score based on the proportion of youth who end up in prison using the data from the previous example.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**SECTION 5**

5.1 Answer these questions based on the following SPSS output.







a) Are mothers’ and fathers’ scores correlated? \_\_\_\_\_\_\_

b) What is the mean difference in mothers’ and fathers’ scores? \_\_\_\_\_\_\_

c) Write a sentence interpreting the results of the t-test

5.2 A researcher thinks that people who drive red cars drive faster than people who drive white cars. He recorded the speed of a random sample of red and white cars on a highway. The data follow.

|  |  |  |
| --- | --- | --- |
|  | **Red Cars** | **White Cars** |
| **Mean** | 72.5 mph | 69.75mph |
| **Variance** | 7.32 mph | 9.85 mph |
| **Sample Size** | 53 | 49 |

1. What is the research hypothesis?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b) Is a one-tail or a two-tail test more appropriate? \_\_\_\_\_\_\_\_

c) Calculate *t* \_\_\_\_\_\_\_

d) Is the research hypothesis supported? Explain?

5.3 Calculate the pooled variance given the following information:

a) s12 = 26, N1 = 30 and s22 = 32, N2 = 40 \_\_\_\_\_\_\_\_

b) s12 = 3.5, N1 = 12 and s22 = 4.6, N2 = 18 \_\_\_\_\_\_\_\_

**SECTION 6**

6.1 Indicate whether or not each of the following F statistics are significant based on the following information, assuming α = .05:

a) F (4, 120) = 3.26 \_\_\_\_\_\_\_\_

b) F (2, 60) = 3.10 \_\_\_\_\_\_\_\_

c) F (6, 500) = 2.14 \_\_\_\_\_\_\_\_

6.2 Given the following information, calculate and interpret F.

|  |  |  |
| --- | --- | --- |
| Source | df | SS |
| Group | 3 | 312.63 |
| Error | 50 | 560.76 |
| Total | 53 | 873.39 |

6.3 Answer the following questions based on this SPSS output.





a) How many groups were compared? \_\_\_\_\_\_\_\_

b) What was the total sample size? \_\_\_\_\_\_\_\_

c) Was the ANOVA significant? \_\_\_\_\_\_\_\_