HW #3

PSY 5003

Due on 10/29/2019

1. The data set *Salary* contains the variables of gender, sex, years of being a faculty member, age, publications, and salary.

(a) Conduct a hypothesis test **by hands** on whether there is a gender difference in salary.

(b) Using R to conduct the test asked in (a). Copy and paste the output here.

(c) Report the results on testing for equality of variance. What is your conclusion?

(c) Summarize and report the results of your hypothesis test as if you are writing for a publication.

2. Dr. McArdle studied differences in fluid reasoning based on age. He collected the below data from three age groups (Young Adults; Adults; Older Adults). The data are scores from the Block Design Test from the Wechsler Adult Intelligence Scale.

(a). Conduct an Analysis of Variance (ANOVA) by hands to determine whether the three age groups have the same means. Make sure to include your **hypotheses, statistical test, decision,** and **conclusion**.

(b). Run an ANOVA using the R program to confirm your results in (a). Copy and paste the relevant output in here.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Young Adults | Adults | Older Adults | Total |
|  | 17 | 16 | 9 |  |
|  | 21 | 12 | 11 |  |
|  | 20 | 14 | 8 |  |
|  | 18 | 14 | 8 |  |
| Mean | 19 | 14 | 9 | 14 |
| Standard Deviation | 1.83 | 1.63 | 1.41 | 4.51 |

Sum 76 56 36

SS 10 8 6

3. Running a paired t-test (i.e., a dependent-sample t test) to evaluate the difference between pre- and post-model scores using a sample of 20 subjects. Show all your calculations.

