**Psy 5013 - Spring 2020**

**Final Exam**

**#1. (30 points)**

**You are interviewing for a job and you will be asked to teach a course in linear models. To ascertain your competence and vision for the course, you are asked to give the 10 most important ideas, principles, or practical matters you have learned in this course. To help, make sure to not simply list 10 things - be sure to justify your ranking of the 10 most important things ... why you chose the ones you did and why did you rank them as you did? At least 2000 words for a sufficient answer.**

**#2. (25 points)**

**Sum of Mean**

**Source DF Squares Square F Value Pr > F**

**Model 3 4133.63322 1377.87774 13.01 <.0001**

**Error 19 XXXXXX XXXXXXX**

**Corrected Total 22 6145.21739**

**Root MSE 10.28945 R-Square 0.6727**

**Dependent Mean 61.34783 Adj R-Sq 0.6210**

**Squared**

**Parameter Standard Standardized Semi-partial**

**Variable DF Estimate Error t Value Pr > |t| Estimate Corr Type I**

**Intercept 1 162.87590 25.77 6.32 <.0001 0 .**

**x1 1 -0.66591 0.82100 -0.81 0.4274 -0.17695 0.34509**

**x2 1 -8.61303 12.24125 -0.70 0.4902 -0.15653 0.04985**

**x3 1 -1.21032 0.30145 -4.01 0.0007 -0.61321 0.27772**

**Squared Squared**

**Semi-partial Partial**

**Variable DF Corr Type II Corr Type II**

**Intercept 1 . .**

**x1 1 0.01133 0.03347**

**x2 1 0.00853 0.02539**

**x3 1 0.27772 0.45900**

**a. (+4) What are the numerator and denominator degrees of freedom for this analysis and what do they refer to (what do they mean)?**

**b. (+2) How many observations (subjects or cases) were in this dataset?**

**c. (+2) What is the Root MSE and what does it mean?**

**d. (+1) What is the mean of Y?**

**e. (+2) What is the best estimate of the population PRE? Why is it the best?**

**f. (+2) What is the intercept value and what does it mean?**

**g. (+5) Which variable is the most important and how do you know this?**

**h. (+3) How do you interpret the parameter estimates?**

**i. (+4) What is a semi-partial correlation and how is it different from a partial correlation? Why are they so different for X3 in this printout?**

**#3. (1 point each blank (29 points total)) Fill in the missing blanks using information at your disposal.**

Class Levels Values

PROF 2 1 2

SEX 2 1 2

Sum of Mean

Source DF Squares Square F Value Pr > F

Model **\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_** 0.0002

Error **\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_** 9.1226852

Corrected Total **\_\_\_\_** 489.8181818

R-Square C.V. Root MSE Y Mean

0.664757 9.465573  **\_\_\_\_\_\_\_\_** 31.9090909

Source DF Type I SS Mean Square F Value Pr > F

PROF **\_\_\_ \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_** 27.65 0.0001

SEX **\_\_\_ \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_** 7.98 0.0112

PROF\*SEX **\_\_\_ \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_** 0.7951

Source DF Type II SS Mean Square F Value Pr > F

PROF **\_\_\_**  169.8245614 169.8245614 18.62 0.0004

SEX **\_\_\_** 72.7578947 72.7578947 7.98 0.0112

PROF\*SEX **\_\_\_ \_\_\_\_\_\_\_\_\_\_\_** 0.6337719  **\_\_\_\_** 0.7951

Source DF Type III SS Mean Square F Value Pr > F

PROF **\_\_\_**  168.2653509 168.2653509 18.44 0.0004

SEX **\_\_\_** 71.8442982 71.8442982 7.88 0.0117

PROF\*SEX **\_\_\_ \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ \_\_\_\_** 0.7951

Level of Level of --------------Y--------------

PROF SEX N Mean SD

1 1 6 26.8333333 3.06050105

1 2 4 30.2500000 2.62995564

2 1 4 32.2500000 1.70782513

2 2 8 36.3750000 3.54310195