Name _____

Student Number _____

STA 431s13 Quiz 10

1. (2 points) In your analysis of the the Poverty Data, you fit a factor analysis model with two factors. Consider the test of whether your model fits the data adequately.

   (a) Give the value of the test statistic. It is a number on your printout. 1.0862

   (b) Give the degrees of freedom. It is a number on your printout. 1

   (c) Give the p-value of the test. It is a number (or range of numbers) on your printout. 0.2973

   (d) Based on the $\alpha = 0.05$ significance level, is this an acceptable model for the data? Answer Yes or No Yes

2. (3 points) In one of the models you fit, the factors were *not* standardized, so the variances of the factors are *not* assumed to equal one. What is the parameter vector $\boldsymbol{\theta}$ for this model? *Give your answer in the form of a list of names from your SAS job.*

   lambda2 lambda4
   phi11 phi12 phi22
   omega1 omega2
   omega3 omega4

3. (3 points) Give the maximum likelihood estimate of the *correlation* between the two factors. The answer is a number. You do not have to show any work.

   0.96065

4. (2 points) You also fit a one-factor model to the data. Consider the test for whether this model fits.

   (a) Give the value of the test statistic. It is a number on your printout. 2.7922

   (b) Give the degrees of freedom. It is a number on your printout. 2

   (c) Give the p-value of the test. It is a number (or range of numbers) on your printout. 0.2476

   (d) Based on the $\alpha = 0.05$ significance level, is this an acceptable model for the data? Answer Yes or No

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Please attach your log file and your list file to the quiz paper. Make sure your name is written on both printouts.