01:960:486 COMPUTING AND GRAPHICS IN APPLIED STATISTICS May 7, 2020 Test #2

Please submit your answers into Canvas today by 3:15 pm. I will be online for emergency situations (for students who cannot access the test, cannot submit the test, etc.). Assume I am proctoring the test and I have no knowledge regarding the questions on the test. Just state any assumption you make if you have difficulty understanding a question and/or parts of a question. You do not need to carry through calculations. It is OK to leave results as 3/8 or (20 + 3)/(100 + 50).

There are 13 questions on 4 pages with room on each page for your answers. You must submit these 4 pages and any additional pages you need into Canvas. Just be sure to clearly label your answers if you use additional pages.

Reminder: The test is open book, open notes, open online resources.

You are to work alone. Rutgers Honors Pledge is in effect.

1. (15 pts) Given the following results from an All Possible Regressions of Y on X1, X2, X3, X4, X5:

Model Number	Variables in Model	Adjusted R-square
1	X3	0.97622
2	X2	0.66077
3	X4	0.37346
4	X1	0.07996
5	X5	-0.00359
6	X3 X2	0.97777
7	X4 X3	0.97719
8	X3 X1	0.97637
9	X5 X3	0.97634
10	X5 X4	0.95772
11	X5 X2	0.85562
12	X4 X2	0.71647
13	X2 X1	0.67041
14	X4 X1	0.45987
15	X5 X1	0.08471
16	X5 X4 X3	0.98511
17	X5 X3 X2	0.97872
18	X3 X2 X1	0.97790
19	X4 X3 X2	0.97769
20	X4 X3 X1	0.97766
21	X5 X3 X1	0.97663
22	X5 X4 X2	0.95849
23	X5 X4 X1	0.95773
24	X5 X2 X1	0.86274
25	X4 X2 X1	0.71549
26	X5 X4 X3 X1	0.98521
27	X5 X4 X3 X2	0.98508
28	X5 X3 X2 X1	0.97863
29	X4 X3 X2 X1	0.97782
30	X5 X4 X2 X1	0.95833
31	X5 X4 X3 X2 X1	0.98515

a) If you were to perform a backward elimination stepwise regression using the adjusted R-square criterion arriving at a model with only the intercept, what is the sequence to remove all 5 variables?

b) If you were to perform a forward stepwise regression using the adjusted R-square criterion arriving at a model with all 5 variables, what is the sequence to add all 5 variables?

c) If you were to perform a sequential (bi-directional) stepwise regression using the adjusted R-square criterion arriving at a final model, what is the sequence to add/remove variables as you arrive at the final model? Be sure to state your final model.