STAT 541: Test 2

1. The following two lines of code generate an error message when a PRINT statement is run. Add a single character to the first line of code so that the title will be printed correctly.

```
%let titletext=%str(Grego, Mai & O'Yates};
title &titletext;
```

2. Indicate which of the following LET statements will generate an appropriate title. Graduate students: if you think a command will fail, explain why.

```
%let titletext='Grego, Mai & Yates';
%let titletext=Grego, Mai & O'Yates;
%let titletext=%bquote(Grego, Mai & O'Yates);
%let titletext=%nrstr(Grego, Mai & O'Yates);
```

3. Consider the SafetyBelt code.

   (a) Modify the PROC SQL code below to save the following query as a view named CountySummary:

   ```
   proc sql;
   select County, sum(Buckled) as totb label="Total Buckled",
   sum(Buckled+Unbuckled) as tot label="Total"
   from SafetyBelt group by County;
   quit;
   ```

   (b) Assume you have successfully created CountySummary as a view. Write a SQL query of CountySummary to generate the table below:

County	Safety Belt Use
Aiken	91.4%
Florence	89.2%
Richland	92.9%

   (c) Graduate students should generate the table above as a nested view (do not create a view as an intermediate step).

4. Suppose the report above was saved as a table in the WORK directory (e.g., WORK.Q3B). Write PROC SQL code to save the county names as macro variables cty1-cty3, and the safety belt use rates as beltuse1-beltuse3. You may assume that the table has three records.

5. Write a simple macro with a single argument–county–that prints the records in data set SafetyBelt for that county–you may use either PROC SQL or PROC PRINT. Write the command that you would use to print the records for Richland County.

6. Assume Q3B is still in the WORK directory. What is the output from this simple macro invocation?

```
%macro highrate(threshold,dataset);
proc sql; select * from &dataset where beltuse gt &threshold;
quit;
%mend highrate;
%highrate(.9,Q3B)
```

7. Consider the data set Stress. Assume elapsed_time has been read into the data set with the TIME. format. What will be the output from the following commands? Explain steps carefully.

```
proc sort data=Stress; by postdown;
data Stress; set Stress; minutes=minute(elapsed_time);
if _n_=1 then do;
call symput('MinSpeed',postdown);
call symput('Time',minutes);
end;
proc print;
title "Stress Test. Minimum download speed of
        &MinSpeed Mb/sec observed after &Time minutes";
run;
```

8. Suppose we wanted to write a macro that generalized the code in Q7 by allowing you to sort Stress on the variable of your choice (postdown or postup) in either ascending or descending order. The first line of the macro definition would look like this:

```
%macro print_title(order=ascending,y=postup)
```

Re-write the SORT command (`proc sort data=hour; by postdown;`) with %IF/%ELSE commands as it would appear in the macro so that Stress is sorted by macro variable &y in either ascending or descending order. Note that ascending order is the default sort order and PROC SORT does not recognize ASCENDING as a keyword.

Data sets

	Post-Installation	Post-Installation
Elapsed Time	Download Speed	Upload Speed
00:00:00	42.3	67.2
00:04:00	20.3	23.1
00:08:00	6.7	8.4
00:12:00	3.6	7.2
00:16:00	14.5	20.0
00:20:00	39.6	64.9

Table 1: Data Set Stress: Elapsed time (HH:MM:SS), and download and upload speed in Megabits per second during a stress test after installation of improved wireless access points in a university classroom. Variable names are elapsed_time, postdown, postup.

County	Site	Buckled	Unbuckled
Aiken	1	7	3
Aiken	2	75	5
Aiken	3	45	2
Florence	1	124	16
Florence	2	95	10
Florence	3	4	1
Richland	1	165	10
Richland	2	40	1
Richland	3	214	21

Table 2: Data Set SafetyBelt: County, observation site, and counts of buckled and unbuckled drivers