

## STAT 541: Test 2

1. Indicate what will be printed by `%put GB = &GB;` for each of the following four statements:

```
%let GB=%str(Garnet & Black);
%let GB=Garnet & Black;
%let GB=%nrstr(Garnet & Black);
%let GB=%bquote(Garnet & Black);
```

2. Suppose you wanted to save the following code as the macro variable `Q2` using a `%LET` statement. Provide two ways for doing so. Graduate students should refer to the attached data set `Voter` to list output from `&Q2`;

```
proc sql;
select * from Voter where upcase(State) contains 'AL';
quit;
```

3. Consider the attached `Employ` data set. Modify the PROC SQL code below to save the following query as a view named `RegionMean`:

```
proc sql;
select Region, mean(EmpCount) as MeanEmp label="Mean Employment",
mean(WeekWage) as MeanWage label="Mean Weekly Wage" format=dollar9.2
from Employ group by Region;
```

4. Assume you have successfully created `RegionMean` as a view. Write a SQL query of `RegionMean` to print the Region and Mean Employment of the region with smallest Mean Employment. Graduate students should do this using a nested view.
5. Write a simple macro with one argument—`Region`—that prints the records in data set `Employ` for that `Region`—use PROC SQL. Write the command that you would use to print the records for `Lowcountry`.
6. Consider the following macro that allows you to select the sorting variable for the data set `Voter`.

```
%macro q6(SortVar);
proc sql; select * from Voter order by &SortVar; quit;
%mend q6;
```

Modify the macro to add a second keyword parameter `InObs`(with null default value). Then add `%IF` and `%DO` statements that allow you to specify the number of observations that are read into the data set.

7. Write PROC SQL code to save the state names from Voter as macro variables `state1-state7`, and the 2012 Voter Participation Rates as `rate2012_1-rate2012_7`. Undergraduates may assume that the table has seven records; graduate students should assume the number of records is unknown. What command would you use to view your macro variables?
8. Using the macro variables from Question 7, what output would the following code generate?

```
data voter2012;  
set voter (keep=rate_2012);  
state=symget('state' || put(_n_,1.));  
proc print;  
run;
```

## Data sets

State	2016 participation	2012 participation
Alabama	59.3%	58.9%
Alaska	61.8%	58.6%
Arizona	56.2%	53.0%
Arkansas	53.1%	51.1%
California	58.4%	55.7%
Colorado	72.1%	70.6%
Connecticut	65.4%	61.5%

Table 1: Data Set Voter: Voter participation rates for eight states in 2016 and 2012. Variable names are state, rate\_2012 and rate\_2016.

County	Region	Employment (thousands)	Average Weekly Wage (\$)
Aiken	Midlands	59.1	945
Beaufort	Lowcountry	63.7	732
Charleston	Lowcountry	243.7	916
Florence	Pee Dee	62.6	736
Greenville	Upstate	262.1	898
Horry	Pee Dee	124.7	632
Lexington	Midlands	115.7	791
Richland	Midlands	219.0	885
Spartanburg	Upstate	133.0	861

Table 2: Data Set Employ: county, region, employment, average weekly wage. Variable names are county, region, EmpCount, WeekWage