

STA311 Stats Comp. & Data Management
Final Exam (via D2L)
Spring 2021
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This is a cumulative exam. You can use the lecture notes, eBook, and example codes that we used in the semester. Some of the questions require you to write SAS data and procedure steps to produce the output to select the correct answer.

Please prepare a clean and well-documented SAS code that you used to answer your questions and submit it to the D2L drop box.

Problem 1.

Which example defines a macro named **Print** that correctly implements parameters named **vars** and **total**?

A.

```
%macro Print(&vars, &total);  
  proc print data=classes;  
    var vars;  
    sum total;  
  run;  
%mend Print;
```

B.

```
%macro Print(vars, total);  
  proc print data=classes;  
    var &vars;  
    sum &total;  
  run;  
%mend Print;
```

C.

```
%macro Print('vars', 'total');  
  proc print data=classes;  
    var &vars;  
    sum &total;  
  run;  
%mend Print;
```

D.

```
%macro Print(vars, total);  
  proc print data=classes;
```

```
var :vars;  
sum :total;  
run;  
%mend Print;
```

Problem 2.

Which DATA step statement selects variables?

- a. VAR
- b. KEEP
- c. SELECT
- d. subsetting IF

Problem 3.

Which DATA step statement selects observations?

- A. VAR
- B. KEEP
- C. SELECT
- D. subsetting IF

Problem 4.

What does the automatic variable named **_N_** represent?

- A. the input observation number
- B. the current observation number
- C. the number of times that the DATA step has iterated
- D. the number of data errors that have occurred during input

Problem 5.

Which statement writes the current observation to the SAS data set being created?

- A. SEND
- B. WRITE
- C. CREATE
- D. OUTPUT

Problem 6.

Which statement prevents a variable from being re-initialized with each iteration of the DATA step?

- A. KEEP
- B. NOINIT
- C. RETAIN
- D. SELECT

Problem 7.

What can FIRST. and LAST. variables detect?

- A. BY-group changes
- B. matching observations
- C. the first and last observations of the input data set
- D. the first and last observations of the output data set

Problem 8.

Which function converts a value from character to numeric?

- a. PUT
- b. INPUT
- c. CONVERTC
- d. CONVERTN

Problem 9.

Which function extracts characters?

- a. SCAN
- b. INDEX
- c. SUBSTR
- d. EXTRACT

Problem 10.

Which function extracts words?

- a. SCAN
- b. INDEX
- c. SUBSTR

d. EXTRACT

Problem 11.

Which function searches for specific characters?

- a. SCAN
- b. INDEX
- c. SUBSTR
- d. EXTRACT

Problem 12

Which DO statement iterates 10 times?

- a. do i=1-10;
- b. do i=1 to 10;
- c. do until (i=10);
- d. do while (i<=10);

Problem 13

The following program is submitted.

```
DATA WORK.TEST;  
INPUT Name $ Age;  
DATALINES;  
John Brunette 35  
;  
RUN;
```

Which values are stored in the output data set?

A.

Name	Age
John	35

B.

Name	Age
(missing value)	(missing value)

C.

Name	Age
John	(missing value)

D.

The DATA step fails execution due to data errors.

Problem 14.

A realtor has two customers. One customer wants to view a list of homes selling for less than \$60,000. The other customer wants to view a list of homes selling for greater than \$100,000.

Assuming the PRICE variable is numeric, which one of the following PRINT procedure steps will select all desired observations?

A.

```
proc print data = houses;  
where price lt 60000 or where price gt 100000;  
run;
```

B.

```
proc print data = houses;  
where price lt 60000;  
where price gt 100000;  
run;
```

C.

```
proc print data = houses;  
where price lt 60000 and price gt 100000;  
run;
```

D.

```
proc print data = houses;  
where price lt 60000 or price gt 100000;  
run;
```

Problem 15

The following SAS program is submitted:

```
LIBNAME temp "SAS data library";
```

```
DATA work.new;
```

```
SET temp.jobs;
```

```
FORMAT newdate mmddyy10.;
  mdate = month(newdate);
  ddate = weekday(newdate);
RUN;
```

```
PROC PRINT DATA = work.new;
RUN;
```

The variable NEWDATE contains the SAS date value for April 15, 2015. What output is produced if April 15, 2015 falls on a Friday?

A.

Obs	newdate	mdate	ddate
1	04/15/2015	4	7

B.

Obs	newdate	mdate	ddate
1	04/15/2015	4	4

C.

Obs	newdate	mdate	ddate
1	04/15/2015	APR	7

D.

Obs	newdate	mdate	ddate
1	04/15/2015	APR	6

Problem 16.

The following SAS program is submitted:

```
DATA work.empsalary;
SET work.people (in = inemp)
  work.money (in = insal);
IF insal and inemp;
RUN;
```

The SAS data set WORK.PEOPLE has 5 observations, and the data set WORK.MONEY has 7 observations.

How many observations will the data set WORK.EMPSALARY contain?

- A. 0
- B. 5
- C. 7
- D. 12

Problem 17.

The following SAS program is submitted:

```
DATA work.sets;  
DO UNTIL (prod gt 6);  
    prod + 1;  
END;  
RUN;
```

Which one of the following is the value of the variable PROD in the output data set?

- A. 5
- B. 6
- C. 7
- D. 8

Problem 18.

The following SAS program is submitted:

```
PROC SORT DATA=work.employee;  
BY DESCENDING fname;
```

```
PROC SORT DATA=work.salary;  
BY DESCENDING fname;
```

```
DATA work.empdata;  
MERGE work.employee  
       work.salary;  
BY fname;  
RUN;
```

Which one of the following statements explains why the program failed execution?

- A. The SORT procedures contain invalid syntax.
- B. The merged data sets are not permanent SAS data sets.
- C. The data sets were not merged in the order by which they were sorted.
- D. The RUN statements were omitted after each of the SORT procedures.

Problem 19.

Consider the following code:

```
DATA work.new;  
mon = 3;  
day = 23;  
year = 2000;  
date = mdy(mon,day,year);  
RUN;
```

Which one of the following is the value of the DATE variable?

- A. a character string with the value '23mar2000'
- B. a character string with the value '03/23/2000'
- C. a numeric value of 14692, which represents the SAS date value for March 23, 2000
- D. a numeric value of 3232000, which represents the SAS date value for March 23, 2000

Problem 20.

The following SAS program is submitted:

```
LIBNAME company 'SAS-data-library';
```

```
PROC SORT DATA = company.payroll;
```

```
BY EmployeeIDNumber;
```

```
RUN;
```

Which one of the following represents how the observations are sorted?

- A. COMPANY.PAYROLL is recreated in sorted order by EmployeeIDNumber.
- B. COMPANY.PAYROLL is stored in original order, and a new data set PAYROLL is created in sorted order by EmployeeIDNumber.
- C. COMPANY.PAYROLL is stored in original order, and a new data set COMPANY.PAYROLLSORTED is created in sorted order by EmployeeIDNumber.
- D. COMPANY.PAYROLL is recreated in sorted order by EmployeeIDNumber, and a new data set PAYROLL is created in sorted order by EmployeeIDNumber.

Problem 21.

The following SAS program is submitted:

```
DATA work.total;
```

```
SET work.salary(KEEP = department wage rate);
```

```
BY department;
```

```
IF first.department THEN payroll = 0;
```

```
payroll + wage rate;
```

```
IF last.department;
```

```
RUN;
```

The SAS data set named WORK.SALARY contains 10 observations for each department, currently ordered by DEPARTMENT.

Which one of the following is true regarding the program above?

- A. The BY statement in the DATA step causes a syntax error.
- B. FIRST.DEPARTMENT and LAST.DEPARTMENT are variables in the WORK.TOTAL data set.
- C. The values of the variable PAYROLL represent the total for each department in the WORK.SALARY data set.
- D. The values of the variable PAYROLL represent a total for all values of WAGERATE in the WORK.SALARY data set.

Problem 22

The following SAS program is submitted:

```
DATA work.test;  
Title = 'A Tale of Two Cities, Charles J. Dickens';  
Word = scan(title,3,' ');  
RUN;
```

Which one of the following is the value of the variable WORD in the output data set?

- A. T
- B. of
- C. Dickens
- D. ' ' (missing character value)

Problem 23.

The following SAS program is submitted:

```
DATA work.test;  
Author = 'Agatha Christie';  
First = substr(scan(author,1,' '),1,1);  
RUN;
```

Which one of the following is the length of the variable FIRST in the output data set? [Hint: think about the procedure to view the information of a data set.]

- A. 1
- B. 6
- C. 15
- D. 200

Problem 24

The following SAS program is submitted

```
DATA work.month;  
date = input('13mar2000',date9.);  
RUN;
```

Which one of the following represents the type and length of the variable DATE in the output data set?

- A. numeric, 8 bytes
- B. numeric, 9 bytes
- C. character, 8 bytes
- D. character, 9 bytes

Problem 25.

The following SAS program is submitted:

```
DATA work.pieces;  
DO WHILE (n lt 6);  
n + 1;  
END;  
RUN;
```

Which one of the following is the value of the variable N in the output data set?

- A. 4
- B. 5
- C. 6
- D. 7

Problem 26

Unless specified, which variables and data values are used to calculate statistics in the MEANS procedure?

- A. non-missing numeric variable values only
- B. missing numeric variable values and non-missing numeric variable values only
- C. non-missing character variables and non-missing numeric variable values only
- D. missing character variables, non-missing character variables, missing numeric variable values, and non-missing numeric variable values

Problem 27.

The following SAS program is submitted:

```
FOOTNOTE1 'Sales Report for Last Month';  
FOOTNOTE2 'Selected Products Only';  
FOOTNOTE3 'All Regions';  
FOOTNOTE4 'All Figures in Thousands of Dollars';  
PROC PRINT DATA = test; /* you can use any data sets */  
FOOTNOTE2 'All Products';  
RUN;
```

Which one of the following contains the footnote text that is displayed in the report?

A. All Products

B. Sales Report for Last Month
All Products

C. All Products
All Regions
All Figures in Thousands of Dollars

D. Sales Report for Last Month
All Products
All Regions
All Figures in Thousands of Dollars

Problem 28

A SAS PRINT procedure output of the WORK.LEVELS data set is listed below:

Obs name level

1 Frank 1
2 Joan 2
3 Sui 2
4 Jose 3
5 Burt 4
6 Kelly .
7 Juan 1

The following SAS program is submitted:

```
DATA work.expertise;  
SET work.levels;  
IF level = . THEN expertise = 'Unknown';  
ELSE IF level = 1 THEN expertise = 'Low';  
ELSE IF level = 2 or level = 3 THEN expertise = 'Medium';  
ELSE expertise = 'High';  
RUN;
```

Which of the following values does the variable EXPERTISE contain?

A. Low, Medium, and High only

B. Low, Medium, and Unknown only

- C. Low, Medium, High, and Unknown only
- D. Low, Medium, High, Unknown, and ' ' (missing character value)

Problem 29.

The following SAS program is submitted:

```
PROC MEANS DATA = sasuser.shoes;  
WHERE product in ('Sandal' , 'Slipper' , 'Boot');  
RUN;
```

Which one of the following ODS statements completes the program and sends the report to an HTML file?

- A. ods html = 'sales.html';
- B. ods file = 'sales.html';
- C. ods file html = 'sales.html';
- D. ods html file = 'sales.html';

Problem 30

Which one of the following SAS system options prevents the page number from appearing on a report?

- A. NONUM
- B. NOPAGE
- C. NONUMBER
- D. NOPAGENUM