Sample Questions

The following sample questions are not inclusive and do not necessarily represent all of the types of questions that comprise the exams. The questions are not designed to assess an individual's readiness to take a certification exam.

SAS 9.4 Advanced Programming Performance-Based Exam

Performance-Based Programming Questions

Note: The programming projects are assessed with a scoring macro that is stored on the lab computer. At the end of your project, you will invoke the scoring macro and it will investigate the results of your project. It will look at parameters and content of output data set as well as values of macro variables stored in the symbol tables. This macro will also investigate the code that you wrote to check that the problem was solved as requested. These are broad checks, so there is still a significant amount of freedom in your chosen coding solution. For example, in the SQL topic, we want to ensure that an SQL procedure was used to create the output data set rather than a DATA Step. The scoring macro will return a 3-digit value to the SAS log. You will record this 3-digit value as your answer to the project to determine your score for the project.

Question 1

Open a new programming window to create **ACT01.sas** in **c:\cert\programs**.

Write a SAS program that will:
- Create output data set **work.ACT0**1 using **sashelp.pricedata** as input.
- Use an array to increase the values of the **price1** through **price17** variables by 10%.

Run your program and troubleshoot as necessary. When you are finished with the project:
1. Ensure that you have saved your program as **ACT01.sas** in **c:\cert\programs**.
2. From **the score.sas** program, call the **scoreit** macro using **ACT01** as the parameter: **%scoreit(ACT01).**

What is the value for Response in the SAS log? ___

Correct Solution: All price values for all price1-through price17 will be increased by 10%. For example, price2 in observation 5 will now be 126.50. Arrays and do loops would be used in the program.

Question 2

Open a new programming window to create **MAC01**.sas in **c:\cert\programs**.

Write a DATA step that reads only the first observation of the **sashelp.cars** data set and stores the value of the **Make** variable in a macro variable named **CarMaker**.
The macro variable must be defined from within the DATA Step.

Run your program and troubleshoot as necessary. When you are finished with the project:
1. Ensure that you have saved your program as MAC01.sas in c:\cert\programs.
2. From the **score.sas pro**gram, call the **scoreit** macro using MAC01 as the parameter: **%scoreit(MAC01)**.

What is the value for Response in the SAS log? __

Correct Solution: The CarMaker macro variable will have a value of Acura. The program will include a symputx routine.

Question 3

Open a new programming window to create **SQL01**.sas in **c:\cert\programs**.

Write an SQL query that will:
- Create output data set **work.SQL01** using **sashelp.cars** as input.
- Compute the average **MPG_City** for each group of **Make**. Name the calculated variable **AvgCityMPG**.
- The output data should have 2 columns, **Make** and **AvgCityMPG**.

Run your program and troubleshoot as necessary. When you are finished with the project:
1. Ensure that you have saved your program as **SQL01.sas** in c:\cert\programs.
2. From the **score.sas** program, call the **scoreit** macro using SQL01 as the parameter: **%scoreit(SQL01)**.

What is the value for Response in the SAS log? __

Correct Solution: An SQL query with a group by clause will be written. The AvgCityMPG for MAKE=MINI will be 26.5.

Standard Questions

Question 4

Given the following SAS data sets ONE and TWO:

ONE			TWO	
NUM	CHAR1		NUM	CHAR2
1	A		2	X
2	B		3	Y
4	D		5	V

The following SAS program is submitted creating the output table THREE:

```
data three;
merge one (in = in1) two (in =
in2);    by num; run;
```

THREE		
NUM	CHAR1	CHAR2
1	A	
2	B	X
3		Y
4	D	
5		V

Which one of the following SQL programs creates an equivalent SAS data set THREE?

```
A. proc sql; create table three as
   select *
        from one full join two
   where one.num = two.num; quit;
```

B. ```
proc sql; create table three as
   select coalesce(one.num, two.num)
   as NUM, char1, char2   from
   one full join two   where
   one.num = two.num; quit;
```

C. ```
proc sql; create table three as
   select one.num, char1, char2
   from one full join two        on
   one.num = two.num; quit;
```

D. ```
proc sql; create table three as
   select coalesce(one.num, two.num)
   as NUM, char1, char2   from
   one full join two   on
   one.num = two.num; quit;
```

**correct answer = "D"**

## Question 5

Given the following SAS data set Sasuser.Houses:

| Obs | Style |
|-----|-------|
| 1 | RANCH |
| 2 | SPLIT |
| 3 | CONDO |
| 4 | TWOSTORY |
| 5 | RANCH |
| 6 | SPLIT |
| 7 | TWOSTORY |

You submit the following SAS program:

```
proc sql noprint;
  select distinct style
    into :styles separated by ' '
    from sasuser.houses
    order by style;
quit;
```

What is the value of the resulting macro variable?

- A. CONDO
- B. TWOSTORY
- C. CONDO RANCH SPLIT TWOSTORY
- D. RANCH SPLIT CONDO TWOSTORY

correct answer = "C"

Question 6

Given the following SQL procedure output:

Table	Physical Obs	% Deleted
EMPLOYEE_ADDRESSES	424	5.0%
EMPLOYEE_PAYROLL	424	5.0%

Which SQL query will produce a report for tables in the ORION library which have had at least 5% of their physical rows deleted, as shown above?

```
A. select MEMNAME 'Table', NOBS 'Physical Obs'        ,
   DELOBS/NOBS '% Deleted' format=percent6.1
      from dictionary.tables
      where LIBNAME='ORION' AND DELOBS/NOBS >= .05;
```

```
B. select Table_Name, Num_Rows 'Physical Obs'
        , Deleted_Rows/Num_Rows '% Deleted'
   format=percent6.1    from dictionary.DBA_TABLES    where
   TABLESPACE_NAME='ORION'      AND Deleted_Rows/Num_Rows
   >= .05;
```

```
C. select MEMNAME 'Table', NLOBS 'Physical Obs'
        , DELOBS/NLOBS LABEL='% Deleted' format=percent6.1
   from dictionary.tables
      where LIBNAME='ORION' AND DELOBS/NLOBS >= .05;
```

```
D. select MEMNAME 'Table', NOBS 'Physical Obs'
        , DELOBS/NOBS LABEL='% Deleted' format=percent6.1
      from dictionary.members
      where LIBNAME='ORION' AND DELOBS/NOBS >= .05;
```

correct answer = "A"

Question 7

The following SAS program is submitted:

```
options_____;
%abc(work.look,Hello,There);
```

In the text box above, complete the options statement that will produce the following log messages:

```
M*****(ABC):   title1 "Hello" ;
M*****(ABC):   title2 "There" ;
M*****(ABC):   proc print data=work.look ;
M*****(ABC):   run ;
```

Correct answer = "mprint"

Question 8

The following SAS program is submitted:

```
%macro mysum(n);
  %if &n > 1 %then  %eval(&n + %mysum(%eval(&n-1)));
  %else &n;
%mend;

%put %mysum(4);
```

Which output is written to the log?

A. 10

B. 4+3+2+1

C. 7

D. A character operand was found in the %EVAL function or %IF
   condition where a numeric operand is required.

correct answer = "A"

Question 9

This question will ask you to provide a segment of missing code.

The WORK.KEYS data set is shown on the left. The SAS program shown on the right is submitted.

```
                     data WORK.DATAOUT;
  WORK.KEYS             length HashKey 8 HashAlpha $1;
 Key    Alpha           if _n_ = 1 then do;
 ---    -----              declare hash T1
  1      A                    (dataset: 'WORK.KEYS
  4      D                              (rename=(Key=HashKey Alpha=HashAlpha))',
  2      B                       ordered: 'ascending');
  3      C                    t1.definekey('HashKey');
  5      E                    t1.definedata('[          ]');
  2      B                    t1.definedone();
  4      D                    call missing(Hashkey, HashAlpha);
                         end;
                         set WORK.KEYS end=eof;
                         if t1.find(key: key) = 0  then output;
                         if eof then t1.output(dataset: 'work.hashout');
                     run;
```

In the text box above, enter the code to complete the program so that it will produce the output shown below:

```
          WORK.DATAOUT                      WORK.HASHOUT
 HashKey  HashAlpha Key Alpha                 HashAlpha
 -------  --------- --- -----                 ---------
    .         A      1    A                        A
    .         D      4    D                        B
    .         B      2    B                        C
    .         C      3    C                        D
    .         E      5    E                        E
    .         B      2    B
    .         D      4    D
```

Case is ignored and standard SAS syntax rules apply.

correct answer = "HashAlpha"