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. Note: Rationales for each question provided at the end of this document.

SAS 9.4 Programming Fundamentals

Question 1

What are the two types of steps?

A. DATA and PROC
B. CHARACTER and NUMERIC
C. RUN and QUIT
D. DATA and DESCRIPTOR

correct answer= “A”

Question 2

Given the code shown below, which two statements are true? (Choose two.)

data work.homeruns23;
   set sashelp.baseball;
   /* where nhome=23; */
run;

A. The WHERE statement is executed.
B. The WHERE statement is ignored.
C. WORK.HOMERUNS23 contains only the rows where NHOMERUN is equal to 23.
D. WORK.HOMERUNS23 contains the same number of rows as SASHELP.BASEBALL.

correct answer= “B, D”
Question 3

Given the SAS log shown below:

199 dat students;
    ---
    14

WARNING 14-169: Assuming the symbol DATA was misspelled as dat.
200 set sashelp.class;
201 ratio=height/weight;
202 run;

NOTE: There were 19 observations read from the data set SASHELP.CLASS.
NOTE: The data set WORK.STUDENTS has 19 observations and 6 variables.

203 204 proc means data=students;
205    class sex;
206    var ratio;
207 run;

NOTE: There were 19 observations read from the data set WORK.STUDENTS.

Which statement is true?

A.  The PROC MEANS step failed.
B.  The DATA step failed.
C.  The DATA step and PROC MEANS step executed.
D.  The program stopped processing after the DATA step.

correct answer= “C”
Question 4
Examine the SAS log shown below:

```
1 proc print data=sashelp.snacks;
2   var Product Price QtySold
3 run;
```

ERROR: Variable RUN not found.

What type of error message is displayed?

A. Logic error
B. PROC error
C. Run-time error
D. Syntax error

correct answer= “D”

Question 5
Which is a valid variable or data set name?

A. 1EMPLOYEE_NAME
B. _1EMPLOYEE_NAME
C. $1EMPLOYEE_NAME
D. 1EMPLOYEE NAME

correct answer= “B”

Question 6
Which statement is true regarding character variables?

A. One character represents one byte.
B. A character value must contain a letter.
C. The byte size limit is 32.
D. Values are stored using floating-point representation.

correct answer= “A”
Question 7
What are two ways to check if the character variable Name has a missing value? (Choose two.)

A. where Name is missing;
B. where Name = " ";
C. where Name = missing;
D. where Name = '.';

correct answer= “A, B”

Question 8
Which statement is true concerning the PROC CONTENTS step?

A. PROC CONTENTS shows a listing of the SAS programs that are available in the default location.
B. PROC CONTENTS creates a report of the descriptor portion of a SAS data set.
C. PROC CONTENTS creates a report of the SAS products that are installed on the given computer.
D. PROC CONTENTS displays the global options that have been assigned.

correct answer= “B”

Question 9
Which DATA statement correctly creates three SAS data sets?

A. data one two three;
B. data=one two three;
C. data one,two,three;
D. data=one data=two data=three;

correct answer= “A”

Question 10
Which statement is true regarding a DATA step with the MERGE statement?

A. The DATA step with the MERGE statement combines data vertically.
B. The MERGE statement can combine only two data sets.
C. The data sets must be sorted by the variable on the BY statement.
D. The variable on the BY statement must exist in one data set.

correct answer= “C”
Question 11

Which statement must be added to write only matching observations when the two data sets are merged?

data patienthistory;
    merge patient(in=inP) appointment(in=inA);
    by PatientID;
    insert-statement-here;
run;

A. if inP=1;
B. if inP=1 and inA=1;
C. if inP=1 or inA=1;
D. if inP=1 and inA=0;

correct answer= “B”

Question 12

Which two statements are true regarding the KEEP and DROP statements? (Choose two.)

A. They can be placed anywhere in the DATA step.
B. They affect all data sets that are being created.
C. They can be used in PROC steps.
D. They control the order of the variables in the output data set.

correct answer= “A,B”

Question 13

The BirthDate variable is equal to a value of 9205 which corresponds to the date of Friday, March 15, 1985.

Given the following statement:
BirthMnth=month(BirthDate);

What is the value of BirthMnth?

A. MAR
B. 03
C. 3
D. March

correct answer= “C”
Question 14

Given the following output:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>Last</td>
<td>FirstLast</td>
</tr>
<tr>
<td>Jane</td>
<td>Smith</td>
<td>Jane Smith</td>
</tr>
<tr>
<td>Todd</td>
<td>Brown</td>
<td>Todd Brown</td>
</tr>
</tbody>
</table>

Which statement creates the variable `FirstLast`?

A. `FirstLast=catx(First, ,Last);`
B. `FirstLast=catx(First,' ',Last);`
C. `FirstLast=catx( ,First,Last);`
D. `FirstLast=catx(' ',First,Last);`

correct answer= “D”

Question 15

Given the input data set `SALES`:

<table>
<thead>
<tr>
<th>Month</th>
<th>Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>10</td>
</tr>
</tbody>
</table>

The following code is submitted:

```plaintext
data Total;
set sales;
by month;
if first.month=1 then TotalSales=0;
TotalSales + Sales;
```

`insert-statement-here`
The data set TOTAL is shown below:

<table>
<thead>
<tr>
<th>Month</th>
<th>Sales</th>
<th>TotalSales</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>3</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>10</td>
<td>30</td>
</tr>
</tbody>
</table>

Which subsetting IF statement correctly selects the final row of each month to produce the data below?

A. if last.month=1;
B. if last.month=0;
C. if month=1;
D. if last=1;

correct answer= “A”

Question 16

Which PROC MEANS option controls the number of decimal places displayed in the report?

A. DECIMALS=
B. NODEC
C. MEANDEC
D. MAXDEC=

correct answer= “D”

Question 17
Which step permanently adds labels and formats to a data set?

A. PROC LABELS step
B. PROC FORMAT step
C. PROC PRINT step
D. DATA step

correct answer= “D”

Question 18

Given the step shown below:

```plaintext
proc means data=sashelp.baseball;
    class position;
    var nRuns nRBI;
run;
```

Which subsetting statement can be added to the PROC MEANS step to subset for values of 1B, 2B, or 3B?

A. where position in ('1B' '2B' '3B');
B. if position in ('1B', '2B', '3B');
C. where position='1B' or '2B' or '3B';
D. if position='1B' or '2B' or '3B';

correct answer= “A”
Question 19

Which program sorts the data set SASHELP.CARS in descending order by Make?

A. proc sort data=sashelp.cars;
   by Make descending;
   run;
B. proc sort data=sashelp.cars;
   by descending Make;
   run;
C. proc sort data=sashelp.cars order=desc;
   sortby Make;
   run;
D. proc sort data=sashelp.cars desc;
   order Make;
   run;

correct answer= “B”
Question 20

Given the report and PROC FREQ step shown below:

```
proc freq data=sashelp.shoes;
  tables product / insert-option(s)-here;
run;
```

Which code completes the TABLES statement?

A. NOFREQ
B. NOCUM NOPERCENT
C. NOPERCENT
D. NOCUM NOFREQ

correct answer= “C”
Question 21

Which PROC EXPORT step correctly creates the `STORMS.CSV` file from the `MYDATA.STORMS` data set?

A. proc export data=mydata.storms outfile=storms.csv
dbms=csv;
run;

B. proc export data=mydata.storms outfile="storms.csv";
dbms=csv;
run;

C. proc export data=storms.csv outfile=mydata.storms;
dbms=csv;
run;

D. proc export data=mydata.storms outfile="storms.csv"
dbms=csv;
run;

correct answer= "D"

Question 22

Which PROC FORMAT step produces an error?

A. proc format;
   value grade 1='A'
              2='B'
              3='C';
   run;

B. proc format;
   value codes 1-3='low'
              4-6='medium'
              7-9='high';
   run;

C. proc format;
   value 1,3,5='odds'
          2,4,6='evens';
   run;

D. proc format;
   value mult 0,1,5='No'
           2='Yes'
           6-8='Unsure';
   run;

correct answer= "C"
Question 23
Which LIBNAME statement correctly uses the XLSX engine to assign the library reference exlib to the Microsoft Excel workbook named CLASS.XLSX stored on the C: drive?

A. libname exlib "c:\Class.xlsx";
B. libname exlib xlsx "c:\Class.xlsx";
C. libname xlsx exlib "c:\Class.xlsx";
D. libname exlib xlsx "c:\Class";

correct answer= “B”

Question 24
Which program correctly sends the PROC PRINT results to an RTF file named SHOES?

A. ods rtf file='c:\shoes.rtf';
   proc print data=sashelp.shoes;
   run;
   ods rtf close;
B. ods rtf out='c:\shoes.rtf';
   proc print data=sashelp.shoes;
   run;
   ods rtf close;
C. ods rtf 'c:\shoes.rtf';
   proc print data=sashelp.shoes;
   run;
   ods rtf close;
D. ods file='c:\shoes.rtf';
   proc print data=sashelp.shoes;
   run;
   ods close;

correct answer= “A”
Question 25

Which DATA statement is needed to complete this program?

```
insert-statement-here
   set sashelp.cars;
   if type="Sedan" or type="Wagon" then output cars;
   else if type="Truck" or type="SUV" then output trucks;
run;
```

A. data;
B. data cars trucks;
C. data sedan wagon truck suv;
D. data Sedan Wagon Truck SUV;

Correct answer = “B”
Rationales for Sample Questions

Question 1
There are only two types of steps and they are DATA and PROC, the other choices are data types, step boundaries and portions of a data set.

Question 2
The WHERE statement is ignored because it is commented. Commented statements are not executed. Because the WHERE statement is not executed, all the rows are read from SASHELP.BASEBALL.

Question 3
While the keyword DATA was misspelled, SAS assumed DAT was DATA and continued to process the program.

Question 4
The semicolon is missing from the VAR statement, therefore, SAS continued to read the RUN statement as if it were a variable in the VAR statement.

Question 5
SAS variable and data set names must begin with a letter or underscore, continuing with letters, numbers and underscores for a total of 32 characters. There can be no spaces in a variable or data set name.

Question 6
In SAS, one character equals one byte. Character values can have letters, numbers, and/or underscores. The byte size limit is 32,767. Only numeric values are stored using floating point representation.

Question 7
Character missing values are represented by a blank. You can use the words “is missing” or you can search for an actual blank (“ “).
Question 8
By definition PROC CONTENTS creates a report of the descriptor portion of a SAS data set which includes a list of the variables in the data set.

Question 9
In order to create multiple data sets, you must specify the names of the data sets in one DATA statement and they must be separated by a space.

Question 10
If the data sets are NOT sorted by the variable on the BY statement, the program will fail. The DATA step with the MERGE statement combines data horizontally. The MERGE statement can combine two or more data sets. The variable on the BY statement must exist in ALL data sets.

Question 11
If the returned observation is in both patient and appointment, then the value for the data set contributor options (inP and inA) will both equal 1.

Question 12
KEEP and DROP statements are compile-time statements in the DATA step. KEEP and DROP statements simply flag the variables in the Program Data Vector (PDV) that are to be written to the the output data set(s). Therefore, they can be placed anywhere in the DATA step. They affect all data sets that are being created. KEEP and DROP statements cannot be used in PROC steps because the PDV is not created in PROC steps, only in the DATA step. The DROP and KEEP statements have no effect on the order of the variables.

Question 13
SAS date values are stored as integers. The MONTH function returns an integer that represents the calendar month. January is 1, February is 2 etc...

Question 14
The CATX function requires the delimiter to be specified first, followed by the variables you wish to concatenate.
**Question 15**

When SAS reads the last occurrence of each month, the value of last.month is equal to 1. The subsetting IF controls which observations are processed and written to the new SAS data set.

**Question 16**

The MAXDEC= option allows you to specify zero to eight decimal places.

**Question 17**

The DATA step creates data and any attributes assigned by the LABEL and FORMAT statements in the DATA step are permanently stored with the data set. The PROC PRINT step temporarily assigns formats and labels for the report being created. The PROC FORMAT step creates user-defined formats but the formats are not associated with a data set during this step.

**Question 18**

You can only use a WHERE statement with a procedure. The first WHERE statement specifies a list of values for the variable POSITION. The second WHERE statement shown is not logically correct because SAS requires complete expressions after the OR operator. In order for the second WHERE statement to be correct it would have to be written as: where position='1B' or position='2B' or position='3B';.

**Question 19**

You must specify the key word DESCENDING before the variable name in the BY statement.

**Question 20**

NOPERCENT suppresses the percent and cumulative percent statistics

**Question 21**

The DATA= option specifies the SAS data set. The OUTFILE= option specifies the name of the file you wish to create, including the file extension, and must be enclosed in quotation marks. The DBMS= option specifies the type of file you wish to create.
**Question 22**
You must specify the name of the format you are creating in the VALUE statement.

**Question 23**
In SAS, the syntax for the LIBNAME statement is: LIBNAME libref engine “fully-qualified path of the Excel workbook including the XLSX extension”;

**Question 24**
In order to send the PROC PRINT results to an RTF file, you must use the ODS statement that specifies the destination and the FILE= option to specify the name of the file in quotation marks. You then need to use the ODS RTF CLOSE statement to specify that you want to stop writing to the RTF file.

**Question 25**
In this example, you are writing observations to the data sets CARS and TRUCKS, based on the value of the variable Type. The data set names, CARS and TRUCKS, must be included in the DATA statement and must be separated by a space. Bottom line: if you are writing out to a data set, that data set name must be included in the DATA statement. Multiple data set names must be separated by a space.