Reading Comprehension

Changing Data Set Variables into Micro Variables by William C. Murphy

Read the following passage and answer the questions that fallows.

For reusing code, macro variables are an indispensable part of the SAS® system. You can create multi-use programs in which titling, sub-setting, and even analysis variables can be controlled by changing the values of macro variables. To create a few macro variables, the %LET statement works extremely well. But if you want to automate the production of macro variables, DATA steps with the CALL SYMPUT statement or PROC SQL provide a better method. If a large number of macro variables need to be created from data set variables, however, even these solutions may require a great deal of typing. Furthermore, if the number of macro variables created for each data set variable and observation is extremely large, the memory demands on the system can be huge. The SAS system however, provides an elegant way to overcome these problems with the CALL SET routine. The macro version of this routine, %SYSCALL SET, provides a simple way to convert data set variables into the equivalent macro variables with few lines of code. Furthermore, the routine allows you to convert and process one observation of data set variables at a time, thus saving on system memory usage. The %SYSCALL SET routine is the ideal solution for changing data set variables into macro variables.

Being a programmer in a small statistical consulting company, I am always trying to find ways to reuse code. If the program worked once, why write it again, especially if you are using it on a near identical project? Macro variables are one of the more useful tools of the SAS system that can expedite the reuse of code. You can readily take a program that was used for one project and generalize it with macro variables to be used with other projects. For example, a given study designation, 'Pharmaceutical Study 203', that was used in various places in a program could be easily changed to 'Pharmaceutical Study 204' if this information was stored in a macro variable. You could also use the same program for running off a series of tables on different study populations (Safety, Intent-To-Treat, Per Protocol etc) if the population information was contained in a macro variable. You can use macro variables to store modeling information for statistical statements, titling and footnote information, analysis variable information, and data sources, all to keep a program useful in a variety of situation. All this could be done even without using any macro programming. However, the additional use of a macro %DO-loop combined with a series of macro variables allows programs to do repetitive processing with ease.

The first step is of course to create the macro variables and populate them with the information that we need. The SAS system provides many methods for making these macro variables. You can make them manually using the %LET statement, or you can make the process automatic using the CALL SYMPUT in the DATA step or the INTO statement in PROC SQL. To create a large number of different macro variables with different content, SAS software also offers us the power of the CALL SET statement.

1) Which of the following provides a better method of automating the production of macro variables?

i) %LET Statement
ii) DATA Steps with the CALL SYMPUT statement
iii) DATA steps with PROC SQL

A) Only i
B) ii or iii
C) i or iii
D) Only iii

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2) Which of the following problems can be overcome by the SAS system?

A) Expediting the reuse of the code
B) Huge memory demands on the system
C) Pharmaceutical studies
D) Changing macro variables into data set variables

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3) Which of the following is TRUE according to the passage?

A) Macro variables of the SAS system can increase expenditure of reusing of the code
B) Macro variables of the SAS system can increase the experience of reusing the code
C) Macro variables of the SAS system can speed up the reuse of the code
D) Macro variables of the SAS system are more suitable for pharmaceutical studies

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4) Which of the following allows programs to do repetitive processing with ease?

A) A series of macro variables
B) A macro %DO-loop
C) A macro %DO-loop combined with a series of macro variables
D) Non-usage of macro programming

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5) What is the additional feature that the SAS software offers, which permits population of large number of macro variables with different content?

A) The %LET statement
B) The CALL SYMPUT in the DATA step
C) The INTO statement in the PROC SQL
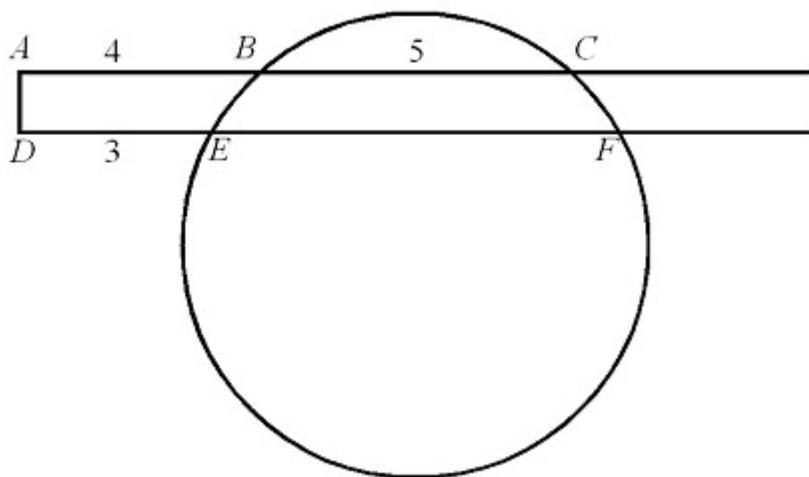D) The CALL SET statement

Quantitative Ability

6) The number of triples (a, b, c) of positive integers which satisfy the simultaneous equations ab + bc = 44, ac + bc = 23, is :

A) 0
B) 1
C) 2
D) 3
E) 4

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7) Find the largest value of y/x for pairs of real numbers (x,y) which satisfy $(x-3)^2 + (y-3)^2 = 6$.

A) $3 + 2\sqrt{2}$
B) $2 + \sqrt{3}$
C) $3\sqrt{3}$
D) 6
E) $6 + 2\sqrt{3}$

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8) A rectangle intersects a circle as shown: AB = 4, BC = 5 and DE = 3. Then EF equals

A) 6
B) 7
C) 20/3
D) 8
E) 9

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9) The largest integer n for which n200 < 5300 is

A) 8
B) 9
C) 10
D) 11
E) 12

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10) Segment AB is both a diameter of a circle of radius 2 and a side of an equilateral triangle ABC. The circle also intersects AC and BC at points D and E, respectively. The length of AE is

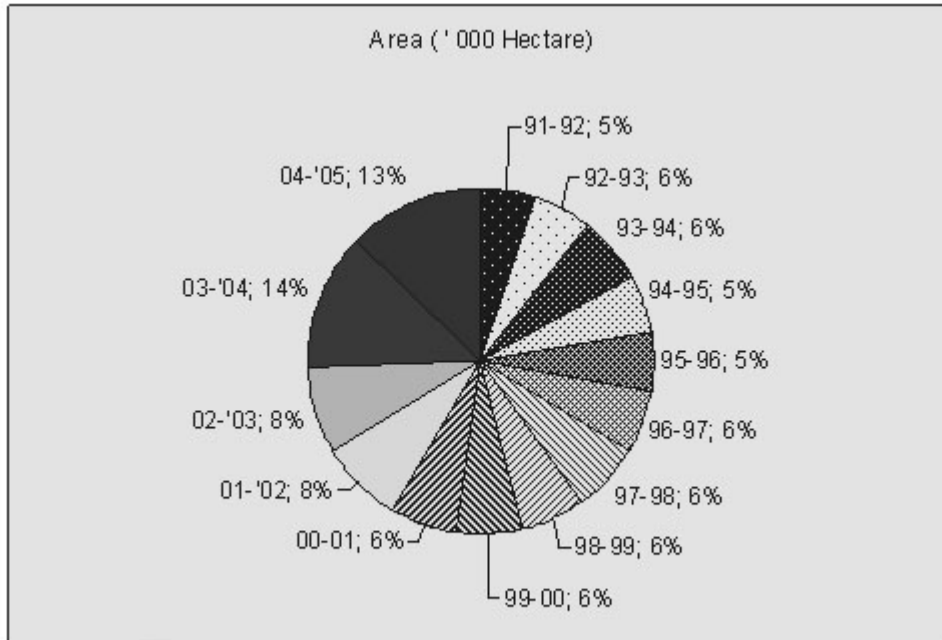A) $\dfrac{3}{2}$

B) $\dfrac{5}{3}$

C) $\dfrac{\sqrt{3}}{2}$

D) $\sqrt{3}$

E) $\dfrac{2+\sqrt{3}}{2}$
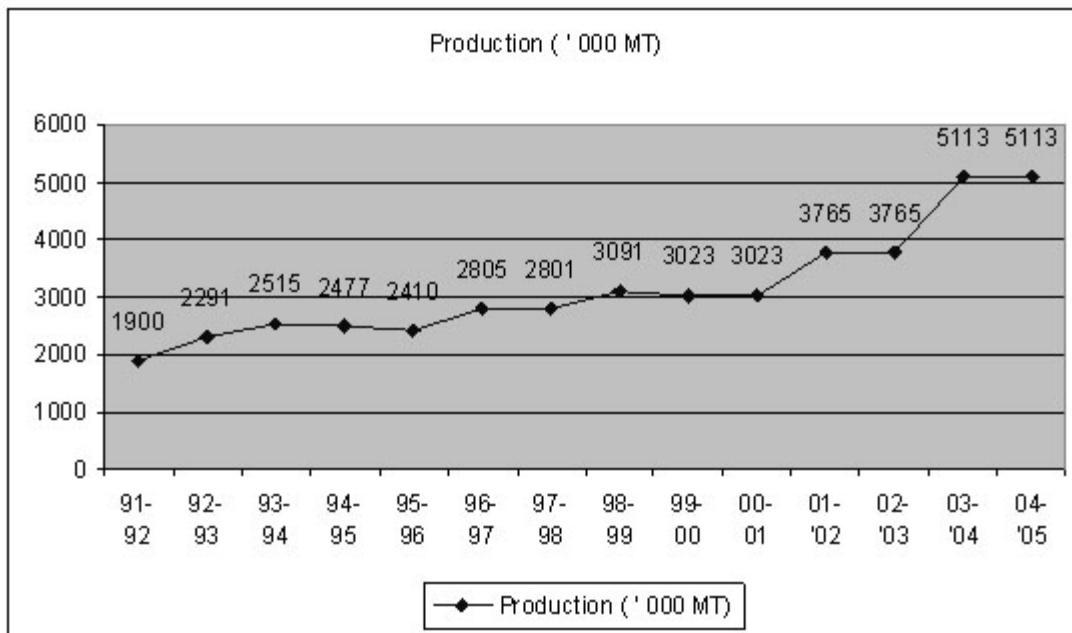
Data Interpretation

India is known as the 'land of spices'. Due to the variations in climate and suitable conditions, major amount of spices that the world consumes is produced in India. Consider the following charts with some facts about spices:

The total sum of area under spice cultivation for all the years is 4,04,00,000 hectares.
The chart shows areas for 1 year time frame from 1991-92 and 2004-2005

Area ('000 Hectare)

- 04-'05; 13%
- 91-92; 5%
- 92-93; 6%
- 93-94; 6%
- 03-'04; 14%
- 94-95; 5%
- 95-96; 5%
- 02-'03; 8%
- 96-97; 6%
- 01-'02; 8%
- 97-98; 6%
- 00-01; 6%
- 98-99; 6%
- 99-00; 6%

Source: Indian spice board

Year wise production of spices is shown in the following chart.

Production ('000 MT)

Values: 1900, 2291, 2515, 2477, 2410, 2805, 2801, 3091, 3023, 3023, 3765, 3765, 5113, 5113

Years: 91-92, 92-93, 93-94, 94-95, 95-96, 96-97, 97-98, 98-99, 99-00, 00-01, 01-'02, 02-'03, 03-'04, 04-'05

Legend: Production ('000 MT)

Source: Indian spice board

Productivity is defined as: quantity produced / area under cultivation
The prices of major spices for a 3 year period are as given below:

Prices of major spices for a 3 year period

	Pepper	Cardamom (Small)	Cardamom (Large)	Chilli	Ginger	Turmeric	Coriander
2002-03	88.32	516.26	141.36	31.98	40.9	41.91	25.94
2003-04	74.11	361.03	114.96	39.14	68.56	48.22	27.88
2004-05	69.08	295.23	91.88	28.71	130.36	52.78	19.04
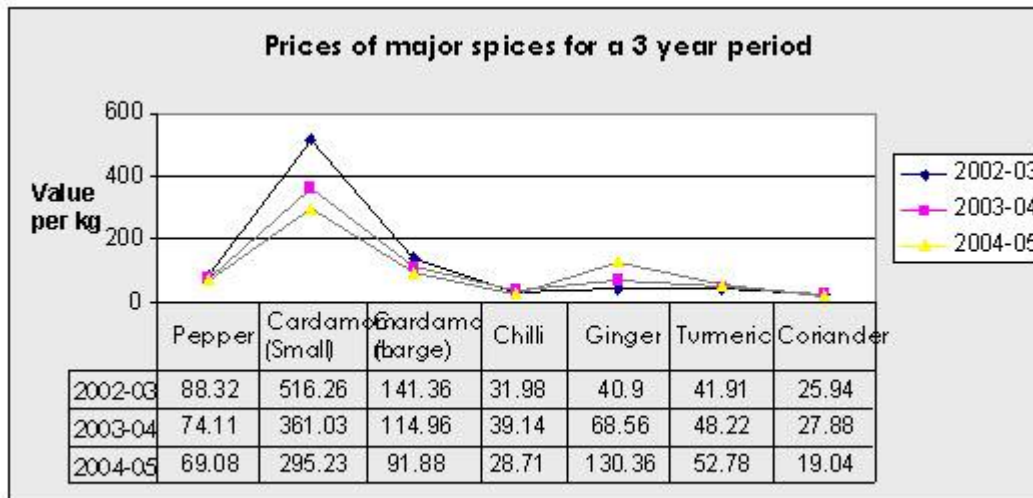
Source: Indian spice board

11) What are the three spices whose production should be increased by the Indian spice board to increase the revenues?

A) Ginger, cardamom (small) and cardamom (large)
B) Turmeric, ginger and pepper
C) Turmeric, ginger and cardamom (large)
D) Chilli, ginger and cardamom (small)
E) None of the options

12) Considering the given context, for how years the productivity was greater than 0.9 but less than 1?

A) 4
B) 3
C) 5
D) 2
E) None of the options

13) How many spices are showing a change in price of over 20% in all 3 years (02-05)?

A) 2
B) 3
C) 4
D) 1
E) None of the options

14) What relation do you find between area of production and productivity?

A) Inversely proportional
B) Directly proportional
C) Increases and then decreases
D) Decreases and then increases
E) None of the options

15) For how many years, both the area under production and produced quantity are altered in the same manner (either increasing or decreasing) when compared to the previous year?

A) 7
B) 5
C) 6
D) 8
E) None of the options

Logical /Analytical Reasoning

16) If ARCHER is coded as 21646616, what would be the code for PETER?

A) 17321319
B) 1723139
C) 17323191
D) None of the options

Each question has two statements and some conclusions. Choose the conclusion that logically follows:

17) Some women are sound.
All sound is music.

A) All women are sound.
B) Some sounds are music.
C) Some sounds are women.
D) None of the options

Assuming the statement given in each question to be true, choose the inference as one of the following:

(A) - True
(B) - False
(C) - Uncertain
(D) - None of the options

18) Statement: Some sweets contain sugar.
Inference: Some sweets do not contain sugar.

A) A
B) B
C) C
D) D

In the following questions, mark

1, if statement I alone can help determine the conclusion
2, if statement II alone can help determine the conclusion
3, if statement I and II taken together can help determine the conclusion

19) Conclusion: The cheaper the inputs, the lower the price of food.

Statement I: The price of food varies directly with the inputs.
Statement II: The price of food must be lowered.

A) 1
B) 2
C) 3
D) 4

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20) In the following questions, three figures that follow a certain sequence or pattern are given. Find the next figure in the sequence from the answer choices provided below.

A) A
B) B
C) C
D) D

Decision Making

Following are the criteria for admitting a student into an Engineering course:

The student should –

(1) Have passed class XII with Science and Maths, and should have secured at least 50% marks
(2) Be at least 18 years of age as on 01 January 2002
(3) Have obtained 50% marks in the entrance test
(4) Be able to pay Rs.20,000 at the time of admission

In the case of a candidate, who satisfies all other criteria except:

- (3) above, but has obtained 95% marks in the class XII with Science is referred to the Principal.
- (2) above, but can pay Rs.40,000 at the time of admission, can be provisionally admitted.

You are given the following cases as on 01 March 2002. Depending upon the information provided in each case and based on the criteria mentioned above, make your decision. You are NOT to assume anything.

21) Satish was born on 10 September 1985. He has secured 90% marks in class XII with Science and Maths. He has secured 75% marks in his entrance test and can pay the admission fee of Rs.20,000.

A) You will admit Satish
B) You will reject Satish.
C) You will refer Satish to the Principal.
D) You will admit Satish provisionally.

22) Prem was born on 17 February 1983. He has secured 70% marks in class XII with Science and Maths. He has secured 85% marks in his entrance test and can pay the admission fee of Rs.20, 000.

A) You will admit Prem.
B) You will reject Prem.
C) You will refer Prem to the Principal.
D) You will admit Prem provisionally.

23) Hemanth was born on 20 January 1983. He has secured 98% marks in class XII with Science and Maths. He has secured 45% marks in his entrance test and can pay the admission fee of Rs.20, 000.

A) You will admit Hemanth
B) You will reject Hemanth.
C) You will refer Hemanth to the Principal
D) You will admit Hemanth provisionally.

24) Purvi was born on 20 October 1982. She has secured 68% marks in class XII with Science and Maths. She has secured 45% marks in the entrance test.

A) You will admit Purvi
B) You will reject Purvi.
C) You will refer Purvi to the Principal.
D) You will admit Purvi provisionally.