NAME :: Justin Butler

1. (10 points, 2 each) Answer the following true/false questions.
2. The statement COMPUTE C ROUND = A + B is a valid use of the ROUND option………...T F

F: The correct term is ROUNDED

1. These two statement are equivalent:  COMPUTE A = A + B and ADD A TO B……………. T F

T: But ADD adds to a literal where compute assigns to an arithmetic expression. So depending on the context it can be true.

1. These two statements are equivalent:  ADD A TO B and ADD A B GIVING B…………......T F

T

1. The MOVE statement can move a variable name value to a literal………................................T F

T

1. The PERFORM statement executes the paragraph only when the condition is TRUE………. T F

F: It continues until you exit perform

1. (10 points) Write ONE equivalent *compute* statement for the following algebraic equation.

  c/d - (b+c)5

A   =    a \*  ----------------

                e3

COMPUTE A = A \* (C/D – (B + C)\*\*5)/E\*\*3

1. (5 points) What is the result of the following statements, given that A = 4, B = 3, C = 2?
2. COMPUTE X  =  A + B \* C – C

4 + 6 – 2 = 8

1. COMPUTE Y  =  C \* A - C \*\* B / A

8 – 8/4 = 8 – 2 = 6

1. (5 points) Determine the output for the following code:

|  |  |
| --- | --- |
| PERFORM VARYING A FROM 1 BY 1 UNTIL A > 3  PERFORM VARYING B FROM 1 BY 1 UNTIL B > 2  DISPLAY “IN LOOP”  END-PERFORM  END-PERFORM | IN LOOP  IN LOOP  IN LOOP  IN LOOP  IN LOOP  IN LOOP  3 sets of 2 in loop displays |

1. (5 points) What is the difference between the following two declarations?

The one on the right defines 03 B as a two digit numeric type which grabs from the given data 3 times as it occurs 3 times.

01 A.

03 B OCCURS 3 TIMES pic 99.

03 C OCCURS 5 TIMES.

05 D PIC 9.

05 E PIC X(10).

05 F PIC 999V99.

01 A.

03 B OCCURS 3 TIMES.

05 C OCCURS 5 TIMES.

10 D PIC 9.

10 E PIC X(10).

10 F PIC 999V99.

1. (15 points) The following is a record with length 70.  Create the input buffer code using the following list of positions and variable names, which are at the end of each line under the RULES.  Be sure to list ALL the variable names as shown under the RULE section.

01 user-information.

02 full-name.

03 first-name PIC A(10).

03 middle-name PIC A(2).

03 last-name PIC A(11).

02 address.

03 street-address PIC X(19).

03 city PIC A(11).

03 state PIC A(2).

03 zip-code PIC 9(5).

02 phone-number.

03 area-code PIC 9(3).

03 phone-number-middle-three PIC 9(3).

03 phone-number-last-four PIC 9(4).

RECORD:  KathrynbbbM.Reevesbbbbb1254bShadowbDrbbbbbOrlandobbbbFL327514078432928

RULES:

The first 23 positions in the record is the full-name.

The next 37 positions is the address.

The next 10 positions is the phone-number.

Also,

The first 10 positions in the record is the first-name.

The next 2 positions is the middle-name.

The next 11 positions is the last-name.

The next 19 positions is the street-address.

The next 11 positions is the city.

The next 2 positions is the state.

The next 5 positions is the zip-code.

The next 3 positions is area-code.

The next 3 positions is the first-3-digits-of-phone-num.

The last 4 positions is the second-4-digits-of-phone-num.

1. (10 points) Which variable names need a picture clause?  Check Yes or No for each variable name.

   01 A                                      \_\_\_\_\_ Yes                     \_\_✓\_\_\_ No

03 B                             \_\_✓\_\_\_ Yes                     \_\_\_\_\_ No

03 C                             \_\_\_\_\_ Yes                     \_\_✓\_\_\_ No

         05 D                    \_\_✓\_\_\_ Yes                     \_\_\_\_\_ No

03 E                             \_\_\_\_\_ Yes                     \_\_✓\_\_\_ No

         05 F                     \_\_✓\_\_\_ Yes                     \_\_\_\_\_ No

         05 G                    \_\_\_\_\_ Yes                     \_\_\_✓\_\_ No

               10 H              \_\_✓\_\_\_ Yes                     \_\_\_\_\_ No

               10 I                \_\_✓\_\_\_ Yes                     \_\_\_\_\_ No

03 K                             \_\_\_✓\_\_ Yes                     \_\_\_\_\_ No

1. (10 points) Answer the following.
2. What is the purpose of the program?

CODE

FD age-file.

01 age-rec.

05 name-in pic x(10).

05 age-in pic 999.

…

77 eof pic x value “N”.

77 add-age…

77 num-recs pic 99 value 0.

…

open input age-file.

read age-file at end move “Y” to eof.

perform until eof = “Y”

add 1 to num-recs

add age-in to add-age

read age-file at end move “Y” to eof

end-perform.

divide num-recs into add-age.

display “output is “ add-age.

stop run.

The program seems to calculate the average age of the age-file records as it sums up the ages, gets the number of records then divides the total records into the summed ages.

1. How should add-age be declared?

add-age should be declared in the working-storage section (aka global variable) as

01 add-age pic 9(4) VALUES 0000. If the summed ages goes over 9999 then an error will occur.

1. When the code finishes executing, what value is in eof?

Y

1. Given an example of the input file with 2 records (use b to denote blanks).

Justinbbbb23b

Fredbbbbb65b

Flintstone123

1. When the code finishes executing, and using the above input record values, what value is in num-recs?

3

1. What does the output look like using the above input record values?

Output is 0070

1. If there are 5 records in the input file, how many times does the loop execute?

5

1. If there are 4 records in the input file, how many times is the “until” condition checked?

5

1. What happens if you change “Y” to “y” on the “until” condition?

The program will keep executing since Y != y

1. What happens if the value clause for the variable “eof” changes to “n” instead of “N”?

Nothing different will happen since the until is checking for “Y”, so the N/n does not matter. It will affect it if the value is set to Y.

1. (20 points, 4 each) Answer the following.
2. If A has a value of 12.35 and the statement MOVE A TO B is executed where B is declared 9999v999, what are the memory locations for B after the statement is executed?
3. 0000^123
4. 0001^235
5. 0012^350
6. 0123^500

C

1. If A has a value of “kittycatbb” and the statement MOVE A TO B is executed where B is declared x(5), what are the memory locations for B after the statement is executed?
2. kitty
3. catbb

A

1. If A has a value of 456.23 and the statement MOVE A TO B is executed where B is declared 99v999, what are the memory locations for B after the statement is executed?
2. 45^623
3. 456^23
4. 56^230

C

1. If A has a value of “kitty” and the statement MOVE A TO B is executed where B is declared x(8), what are the memory locations for B after the statement is executed?
2. kittybbb
3. bbbkitty

A

1. If A has a value of 12.35 and the statement MOVE A TO B ROUNDED is executed where B is declared 999V9, what are the memory locations for B after the statement is executed?
2. 012^3
3. 012^4
4. 123^5

A

1. (10 points, 5 points each)
2. List the relational operators used in IF-statement conditions.

IS

IS >

IS <

IS >=

IS <=

IS NOT

IS NOT >

IS NOT <

1. What is the precedence order of +, -, \*, /, and \*\* (exponent) in the compute statement?

Left to right

Parenthesis are calculated first

Exponents

Multiplication/division

Addition/subtraction

Ex: A+B – C\*\*D \* (A + B\*\*C \* D)

(A + B\*\*C \* D) is first since it is in parenthesis

B\*\*C is first

“Value of B\*\*C” \* D is done next

Finally A + value is done last

Now C\*\*D is computed

“value of C\*\*D” \* value of stuff in parenthesis

Now its just left to right doing addition and subtraction