Review Test Submission: Quiz 4 - Basics of Programming Languages

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Course	201503_Advanced Software Paradigms_CSCI_6221_11
Test	Quiz 4 - Basics of Programming Languages
Started	9/30/15 6:13 PM
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Status	Completed
Attempt Score	85 out of 110 points
Time Elapsed	23 minutes out of 30 minutes
Results Displayed	All Answers, Feedback, Incorrectly Answered Questions

Question 1

10 out of 10 points

Let us assume you have the following statements in a Javascript script:

list = [10.2, 3.5]; list = 47;

at the end, what can you say about the type of the variable list?

Answers:

list would become the name of a scalar variable.

list would become the name of a single-dimensioned array of length 2

This Javascript script will fail during execution

all answers are wrong

Response Feedback: a JavaScript script may contain the following statement:

list = [10.2, 3.5];

Regardless of the previous type of the variable named list, this assignment causes it to become the name of a single-dimensioned array of length 2. If the statement

list = 47;

followed the previous example assignment, list would become the name of a scalar variable.

Question 2

0 out of 15 points

Regarding static and dynamic type checking, fill the blanks with static or dynamic:

[a] type checking is better than **[b]** type checking for two reasons: First, anything done at compile time leads to better overall efficiency, simply because production programs are often executed but far less often compiled. Second, type checking uncovers program errors, and the earlier errors are found the less costly it is to remove them.

Response Feedback: Static type checking is better than dynamic type checking for two reasons: First, anything done at compile time leads to better overall efficiency, simply because production programs are often executed but far less often compiled. Second, type checking uncovers program errors, and the earlier errors are found the less costly it is to remove them.

Question 3

10 out of 10 points

A good justification for the -> operator in C and C++ is writability. It is slightly easier to write `p -> q` than `(*p).q`.

Answers: True
False

Question 4

10 out of 10 points

Copy of
What would be the result of the following Lisp expression?

(list (+ 1 2) '(+ 1 2))

Answers: (3 (+ 1 2))

(3 3)

(6)

all answers are wrong

Response Feedback: The LIST function takes any number of parameters and returns a new list with the parameters as its elements. For example, consider the following call to LIST:
(LIST 'A 'B '(C D))

This call returns the new list (A B (C D)).

However, the + operator will add 1+2 resulting 3.

The list '(+ 1 2) is just another list, therefore, the final result will be (3 (+ 1 2))

Question 5

0 out of 10 points

Consider the following JavaScript skeletal program:

```
// main program

var x;

function sub1() {

     var x;
```

```
        function sub2 () {

          ....

        }

}

function sub3() {

        ...

}
```

Assume that the execution of this program is in the follwing unit order:

`main` **calls** `sub1`

`sub1` **calls** `sub2`

`sub2` **calls** `sub3`

Assuming static scoping, in the following, which declaration of x is the correct one for a reference to x?

1. sub1 **[a]** **sub1**
2. sub2 **[b]** **sub1**
3. sub3 **[c]** **main**

Question 6

15 out of 15 points

C++ relies on implicit heap storage. Java uses explicit heap storage. Explict heap storage recovery eliminates the creation of dangling pointers through implicit deallocation operations, such as delete. The great advantage of implicit heap storage recovery is the execution time cost of doing the recovery, often when it is not even necessary (there is no shortage of heap storage).

Answers: True
False

Response Feedback: Java utilizes implicit heap storage recovery. C++ uses explicit explicit heap storage recovery. Implicit heap storage recovery eliminates the creation of dangling pointers through explicit deallocation operations, such as **`delete`**. The disadvantage of implicit

heap storage recovery is the execution time cost of doing the recovery, often when it is not even necessary (there is no shortage of heap storage).

Question 7

10 out of 10 points

What would be the result of the following Lisp expression?

(list (+ 1 2) '(+ 1 2))

Answers: (3 (+ 1 2))

(3 3)

(6)

all answers are wrong

Response Feedback: The LIST function takes any number of parameters and returns a new list with the parameters as its elements. For example, consider the following call to LIST:
(LIST 'A 'B '(C D))

This call returns the new list (A B (C D)).

However, the + operator will add 1+2 resulting 3.

The list '(+ 1 2) is just another list, therefore, the final result will be (3 (+ 1 2))

Question 8

20 out of 20 points

In the Burroughs Extended ALGOL language, matrices are stored as single-dimensioned array of pointers to the rows of the matrix, which are treated as single-dimensioned arrays of values. Please, indicated that if the following statement is true or false:

The advantage of this scheme is that accesses that are done in order of the rows can be made very fast; once the pointer to a row is gotten, all of the elements of the row can be fetched very

quickly.

Answers: True
False

Question 9

10 out of 10 points

Regarding the arguments for and against representing Boolean values as single bits in memory, indicate if the following statement is true or false.

Boolean variables stored as single bits are very space efficient, but on most computers access to them is slower than if they were stored as bytes.

Answers: True
False

Response Feedback: Boolean variables stored as single bits are very space efficient, but on most computers access to them is slower than if they were stored as bytes.

Wednesday, October 7, 2015 6:48:32 PM EDT

← OK