Practice 08 Ch20 Recursion

Due May 24 at 11:59pm **Points** 2.7 **Questions** 27
Available Jan 29 at 12am - May 24 at 11:59pm 4 months **Time Limit** 15 Minutes
Allowed Attempts Unlimited

Instructions

Practice Quizzes 08 Ch 20 Recursion

Total 2.7 points, 0.1 point each

You may take as many time as you like.

Your best score is kept on record.

Take the Quiz Again

Attempt History

	Attempt	Time	Score
KEPT	Attempt 2	7 minutes	2.7 out of 2.7
LATEST	Attempt 2	7 minutes	2.7 out of 2.7
	Attempt 1	10 minutes	2.08 out of 2.7

ⓘ Correct answers are hidden.

Score for this attempt: **2.7** out of 2.7
Submitted Apr 24 at 4:45pm
This attempt took 7 minutes.

Question 1 — 0.1 / 0.1 pts

The _____ of recursion is the number of times a recursive function calls itself.

- level

- breadth
- type
- depth
- None of these

Question 2

0.1 / 0.1 pts

Recursive algorithms are less efficient than iterative algorithms.

- True
- False

Question 3

0.1 / 0.1 pts

If a recursive algorithm does NOT contain a base case, it

- returns 0 and stops
- returns false and stops
- uses up all available stack memory, causing the program to crash
- reaches the recursive case and stops
- None of these

Question 4

0.1 / 0.1 pts

A _____ function is one that calls itself.

- dynamic
- static
- validation
- recursive
- None of these

Question 5

0.1 / 0.1 pts

Any algorithm that can be coded with recursion can also be coded with an iterative structure.

- True
- False

Question 6

0.1 / 0.1 pts

The programmer must ensure that a recursive function does NOT become

- a static function
- a virtual function
- an endless loop
- a dynamic function

- None of these

Question 7

0.1 / 0.1 pts

When function A calls function B which, in turn, calls function A, this is known as

- direct recursion
- (•) indirect recursion
- function swapping
- perfect recursion
- None of these

Question 8

0.1 / 0.1 pts

The speed and amount of memory available to modern computers diminishes the performance impact of recursion so much that inefficiency is no longer a strong argument against it.

- (•) True
- False

Question 9

0.1 / 0.1 pts

The QuickSort algorithm works on the basis of

- three sublists
- two sublists and a pivot
- two pivots and a sublist
- three pivots
- None of these

Question 10

0.1 / 0.1 pts

The following code is an example of a _____ recursive algorithm.

```
int myRecursion(int array[], int first, int last, int val)
{
    int num;
    if (first > last)
        return -1;
    num = (first + last)/2;
    if (array[num] == val)
        return num;
    if (array[num] < val)
        return myRecursion(array, num + 1, last, val);
    else
        return myRecursion(array, first, num - 1, val);
 }
```

- Towers of Hanoi
- QuickSort
- binary search
- doubly linked list
- None of these

Question 11

0.1 / 0.1 pts

When recursion is used on a linked list, it will always display the contents of the list in reverse order.

- ○ True
- ◉ False

Question 12

0.1 / 0.1 pts

Like a loop, a recursive function must have some method to control the number of times it repeats.

- ◉ True
- ○ False

Question 13

0.1 / 0.1 pts

The recursive `factorial` function calculates the factorial of its parameter. Its base case is when the parameter is

- ○ returned
- ○ received
- ○ one
- ◉ zero
- ○ None of these

Question 14

0.1 / 0.1 pts

How many times will the following function call itself if `5` is passed as the argument?

```
void showMessage(int n)
{
     if (n > 0)
     {
          cout << "Good day!" << endl;
          showMessage(n - 1);
     }
}
```

- 1
- 4
- 5
- An infinite number of times

Question 15

0.1 / 0.1 pts

A problem can be solved with recursion if it can be broken down into successive smaller problems that are the same as the overall problem.

- True
- False

Question 16

0.1 / 0.1 pts

The QuickSort algorithm is used to sort

- (•) lists stored in arrays or linear linked lists
- ( ) tree data structures
- ( ) randomly-ordered files
- ( ) All of these
- ( ) None of these

Question 17

0.1 / 0.1 pts

A recursive function cannot call another function.

- ( ) True
- (•) False

Question 18

0.1 / 0.1 pts

The QuickSort algorithm was developed in 1960 by

- ( ) Bjarne Stroustrup
- ( ) Tony Gaddis
- (•) C.A.R. Hoare
- ( ) C.M. Turner
- ( ) None of these

Question 19

0.1 / 0.1 pts

The _____ algorithm uses recursion to sort a list.

- shell sort
- QuickSort
- binary sort
- red/black sort
- None of these

Question 20

0.1 / 0.1 pts

Select all that apply. Which of the following problems can be solved using recursion?

- [x] computing factorials
- [x] finding the greatest common divisor of two numbers
- [x] doing a Binary Search
- [ ] multiplying two numbers
- [x] traversing a linked list

Question 21

0.1 / 0.1 pts

A recursive function is designed to terminate when it reaches its

- return statement
- closing curly brace
- last parameter
- (•) base case
- None of these

Question 22

0.1 / 0.1 pts

To solve a problem recursively, you must identify at least one case in which the problem can be solved without recursion.

- (•) True
- False

Question 23

0.1 / 0.1 pts

In a recursive solution, the base case is always the first case to be called.

- True
- (•) False

Question 24

0.1 / 0.1 pts

When a recursive function directly calls itself, this is known as direct recursion.

- (•) True
- ( ) False

Question 25

0.1 / 0.1 pts

All mathematical problems are designed to be more efficient using recursive solutions.

- ( ) True
- (•) False

Question 26

0.1 / 0.1 pts

Indirect recursion means that a function calls itself **n** number of times and then processing of the function starts from the first call.

- ( ) True
- (•) False

Question 27

0.1 / 0.1 pts

How many times will the following function call itself if `5` is passed as the argument?

```
void showMessage(int n)
{
     if (n > 0)
     {
          cout << "Good day!" << endl;
          showMessage(n + 1);
     }
}
```

- 1
- 4
- 5
- An infinite number of times

Quiz Score: **2.7** out of 2.7