Started on	Friday, 17 March 2023, 5:10 PM
State	Finished
Completed on	Friday, 17 March 2023, 5:19 PM
Time taken	9 mins 47 secs

Question 1

Complete

Marked out of 1.00

Given below are four functions that try to calculate the factorial of N. Which of these are correct?

Select one or more:

a.
```
factorial(N)
    if N == 0:
        return 1
    else:
        return factorial(n-1) * n
```

b.
```
factorial(N)
    if N == 0 or N == 1:
        return 1
    else:
        return factorial(n-1) * n
```

c.
```
factorial(N)
    if N == 1:
        return 1
    else:
        return factorial(n-1) * n
```

d.
```
factorial(N)
        return factorial(n-1) * n
```

e.
```
factorial(N)
        return factorial(n-1)
```

Question 2

Complete

Marked out of 1.00

Algorithm(s) which use divide and conquer approach

- [x] a. Binary search
- [ ] b. Insertion Sort
- [x] c. Merge sort
- [ ] d. Selection Sort

Question 3

Complete

Marked out of 1.00

Which of the following recursion functions can be used to calculate factorial of a number.

- (•) a. fact(n) = n * fact(n-1)
- ( ) b. fact(n) = n * fact(1)
- ( ) c. fact(n) = n * fact(n+1)
- ( ) d. fact(n) = n * fact(n)

Question 4

Complete

Marked out of 1.00

In a little game, a computer is going to randomly select an integer from 1 to 2000. You'll keep guessing numbers until you find the computer's number, and the computer will tell you each time if your guess was too high or too low. How many quesses you need atmost in your worst case scenario given you use an optimal strategy?

Answer: 11

Question 5

Complete

Marked out of 1.00

Given the following method declaration, what will `redo(82, 3)` return?

```
public static int redo(int i, int j)
{
   if (i==0)
      return 0;
   else
      return redo(i/j, j)+1;
}
```

```
Here '/' is integer division.
```

- a. 7
- b. 4
- c. 5
- d. 6

Question 6

Complete

Marked out of 1.00

Consider Following Code

```
void my_recursive_function()
{
    my_recursive_function();
}

int main()
{
    my_recursive_function();
    return 0;
}
```

What will happen when the above snippet is executed?

- a. The code will show a compile time error
- b. The code will be executed successfully and random output will be generated
- c. The code will be executed successfully and no output will be generated
- d. The code will run for some time and stop when the stack overflows

Question 7

Complete

Marked out of 1.00

Consider the following functions,

```
func1(N)
if N == 0:
        return True
else:
        return func2(N-1)

func2(N)
if N == 0:
        return False
else:
        return func1(N-1)
```

What are the above types of recursive functions called ?

Select one:

- a. Nested Recursion
- b. Tail Recursion
- c. Mutual Recursion
- d. Linear Recursion
- e. Multiple Recursion

Question 8

Complete

Marked out of 1.00

Worst case time complexity of Merge Sort

- a. O(n log(n))
- b. O(n)
- c. O(log(n))
- d. $O(n^2)$

Previous activity

◄ Recursion & Divide and conquer- Take Home Assignment

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