Solution Practice Quiz 1

1	A function in C **must** have a return value. a. True b. False	B. False. A function may have the return value *void* which doesn't return anything.
2	The expression `ceil(-19.7)` returns a. -19 b. -19.0 c. -20 d. -20.0	B. -19.0 `Ceil(x)` returns the smallest whole number that is greater than x.
3	The expression `ceil(19.7)` returns e. 19 f. 19.0 g. 20 h. 20.0	H. 20.0 `Ceil(x)` returns the smallest whole number that is greater than x.

4	Which of the following snippets of code returns a random value between 3 and 9 (both inclusive)?
	a. rand(3, 9);
	b. rand(3, 10);
	c. rand() % 9 + 3;
	d. rand() % 7 + 3;
		D.
		A and B are invalid with C's rand() function. Option C returns a random value between 3 and 11 inclusive, option D returns a value between 3 to 9 inclusive.

5	Which of the following is NOT one of the four identifier scopes in C? a. Function-prototype scope b. File scope c. Nested scope d. Block scope e. Function scope	C
6	When solving the same problem, which of the following approaches usually takes MORE memory than the other? a. Iteration b. Recursion c. They take the same amount of memory	B. Recursion usually takes more memory than iteration because it requires more instances of a function to be invoked, which allocates memories to keep track of more variables.
7	What is *passed by value*? a. A copy of the argument's value is made and passed to the called function b. A reference of the argument will be passed to called function	A
8	`#include` will be preprocessed before compile.	A

	A. True B. false	
9	In C, program starts executing from main function. a. True b. False	A
10	Function call is last in, first out: a. True b. False	A true
11	`printf("%.3f\n", sqrt(4));` will print a. 2 b. 2.000 c. void	B. it force argument to the appropriate type
12	Given that x is 3 and y is -3, `void maximum(int x, int y);` will return a. 3 b. -3 c. void	C. void
13	`return;` is grammar correct. a. True b. False	A. It is allowed to return nothing
14	`int func(void)` takes __ parameter a. int b. float c. void	C. it doesn't take any parameter
15	int func(void) returns d. int e. float f. void	A, return a int type
16	In C, parameters are always ( ) A. Passed by value B. Passed by reference C. Non-pointer variables are passed by value and pointers are passed by reference D. Passed by value result	A. In C, function parameters are always passed by value. Pass-by-reference is simulated in C by explicitly passing pointer values.

Q17: What will be the output for the following program for x=6 and y=8 (Example from textbook)

```
#include <stdio.h>
unsigned int mystery(unsigned int a, unsigned int b);
```

```
int main(void)
{
   printf("%s", "Enter two positive integers: ");
   unsigned int x; // first integer
   unsigned int y; // second integer
   scanf("%u%u", &x, &y);

   printf("The result is %u\n", mystery(x, y));
}
unsigned int mystery(unsigned int a, unsigned int b)
{
   // base case
   if (1 == b) {
      return a;
   }
   else { // recursive step
      return a + mystery(a, b - 1);
   }
}
```

Options: 48, 50, 39, 14

Q18: In the above program what will happen if b is a -ve number?
Options: compiler ignores -ve sign and continue, infinite recursion, syntax error

Q19:What does this line of code print: printf("%d", 3 + (rand() % 10))
Random numbers between 3 and 10 inclusive, random numbers starting from 13, random numbers from 3 to 13

Q20: What is the purpose of this function:

```
unsigned long long int mystryfunc(unsigned int number)
{
   // base case
   if (number <= 1) {
      return 1;
   }
   else { // recursive step
      return (number * mystryfunc(number - 1));
 }
```

Options: Fibonacci series, Factorial of a number, base and exponential