Medium-to-high level pseudocode questions on Functions

Category 1: Recursive Functions – Q1 to Q20

Q1. What will be the output of the following?

```
function sum(n)
    if n == 1
        return 1
    return n + sum(n - 1)

print(sum(5))
```

Q2. Predict the result:

```
function mystery(a, b)
    if b == 0
        return 0
    return a + mystery(a, b - 1)

print(mystery(3, 4))
```

Q3. What is the output?

```
function f(n)
    if n == 0
        return 0
    else
        return n + f(n - 2)

print(f(6))
```

Q4. Output?

```
function fun(x)
    if x == 0
        return
    fun(x - 1)
    print(x)

fun(3)
```

Q5. Output of the code:

```
function fact(n)
    if n == 0
        return 1
    return n * fact(n - 1)
print(fact(4))
```

Q6. What is returned?

```
function fib(n)
    if n == 0
        return 0
    else if n == 1
        return 1
    return fib(n - 1) + fib(n - 2)

print(fib(6))
```

Q7. Predict output:

```
function fun(n)
    if n <= 1
        return n
    return fun(n - 1) + fun(n - 3)

print(fun(5))
```

Q8. Count the number of recursive calls for fun(3):

```
function fun(n)
    if n == 0
        return
    fun(n - 1)
    fun(n - 1)
```

Q9. What is the output?

```
function sumDigits(n)
    if n == 0
        return 0
    return (n mod 10) + sumDigits(n div 10)

print(sumDigits(1234))
```

Q10. Trace the output:

```
function reversePrint(n)
    if n == 0
        return
    print(n)
    reversePrint(n - 1)

reversePrint(3)
```

Q11. Output?

```
function foo(n)
    if n <= 0
        return 0
    else if n == 1
        return 1
    return foo(n - 1) + foo(n - 2)

print(foo(4))
```

Q12. What will be printed?

```
function series(n)
    if n == 1
        return 1
    return n * series(n - 1)

print(series(5))
```

Q13. How many times will print be called?

```
function fun(n)
    if n == 0
        return
    fun(n - 1)
    fun(n - 1)
    print(n)

fun(2)
```

Q14. What is the result?

```
function productOfDigits(n)
    if n == 0
        return 1
    return (n mod 10) * productOfDigits(n div 10)

print(productOfDigits(123))
```

Q15. Predict the final output:

```
function f(x)
    if x < 1
        return
    f(x / 2)
    print(x)

f(8)
```

Q16. Output?

```
function power(x, y)
    if y == 0
        return 1
    return x * power(x, y - 1)

print(power(2, 4))
```

Q17. Result?

```
function countDown(n)
    if n == 0
        return
    print(n)
    countDown(n - 1)

countDown(3)
```

Q18. What will be returned?

```
function altSum(n)
    if n == 0
        return 0
    return n - altSum(n - 1)

print(altSum(5))
```

Q19. What is the value of fun(3)?

```
function fun(n)
    if n == 1
        return 1
    return n * fun(n - 1) + fun(n - 1)

print(fun(3))
```

Q20. What does this compute?

```
function doubleFactorial(n)
    if n <= 0
        return 1
    return n * doubleFactorial(n - 2)

print(doubleFactorial(5))
```