Python Programs on Functions

1. Function to add two numbers

```
def add(a, b):
    return a + b

print(add(3, 5))
```

2. Function to check if number is even or odd

```
def even_odd(n):
    return "Even" if n % 2 == 0 else "Odd"

print(even_odd(7))
```

3. Function to calculate factorial

```
def factorial(n):
    if n == 0: return 1
    return n * factorial(n - 1)

print(factorial(5))
```

4. Function to find maximum of three numbers

```
def max_of_three(a, b, c):
    return max(a, b, c)

print(max_of_three(3, 7, 2))
```

5. Function to reverse a string

```
def reverse_string(s):
    return s[::-1]

print(reverse_string("hello"))
```

6. Function to check if a string is a palindrome

```
def is_palindrome(s):
    return s == s[::-1]

print(is_palindrome("madam"))
```

7. Function to count vowels in a string

```
def count_vowels(s):
    return sum(1 for c in s.lower() if c in 'aeiou')

print(count_vowels("OpenAI"))
```

8. Function to generate Fibonacci series

```
def fibonacci(n):
    series = [0, 1]
    for i in range(2, n):
```

```
        series.append(series[-1] + series[-2])
    return series[:n]

print(fibonacci(10))
```

9. Function to find GCD

```
def gcd(a, b):
    while b:
        a, b = b, a % b
    return a

print(gcd(36, 60))
```

10. Function to check prime number

```
def is_prime(n):
    if n <= 1: return False
    for i in range(2, int(n**0.5)+1):
        if n % i == 0: return False
    return True

print(is_prime(11))
```

11. Function to return square of list elements

```
def square_list(lst):
    return [x**2 for x in lst]

print(square_list([1, 2, 3, 4]))
```

12. Function to find sum of list

```
def sum_list(lst):
    return sum(lst)

print(sum_list([5, 10, 15]))
```

13. Function to remove duplicates from a list

```
def remove_duplicates(lst):
    return list(set(lst))

print(remove_duplicates([1, 2, 2, 3, 1]))
```

14. Function to get even numbers from list

```
def even_numbers(lst):
    return [x for x in lst if x % 2 == 0]

print(even_numbers([1, 2, 3, 4, 5, 6]))
```

15. Function to find second largest number in list

```
def second_largest(lst):
    return sorted(set(lst))[-2]

print(second_largest([5, 1, 2, 8, 8, 3]))
```

16. Function with default argument

```
def greet(name="Guest"):
    return f"Hello, {name}!"

print(greet())
print(greet("Deepak"))
```

17. Lambda function to multiply

```
multiply = lambda x, y: x * y

print(multiply(4, 5))
```

18. Function with variable arguments

```
def total(*args):
    return sum(args)

print(total(1, 2, 3, 4))
```

19. Function returning another function

```
def outer():
    def inner():
        return "Hello from inner"
    return inner

func = outer()
print(func())
```

20. Recursive function to calculate sum of digits

```
def sum_of_digits(n):
    if n == 0: return 0
    return n % 10 + sum_of_digits(n // 10)

print(sum_of_digits(1234))
```