

1. Which of the following defines a closure in Python?

- A) A function defined inside another with access to outer scope variables
- B) A function without return
- C) A function that always returns None
- D) A function with multiple arguments

Answer: A

2. Which is the correct order of scope resolution in Python (LEGB)?

- A) Local → Global → Enclosing → Built-in
- B) Local → Enclosing → Global → Built-in
- C) Global → Local → Built-in → Enclosing
- D) Built-in → Global → Local → Enclosing

Answer: B

3. What is the output?

```
def f(a, b=2, c=3):  
    return a+b+c  
print(f(1,c=5))
```

- A) 8
- B) 6
- C) 10
- D) Error

Answer: A

4. What will happen?

```
def f(x, y, /, z=3):  
    return x+y+z  
print(f(1,2,4))
```

- A) 7
- B) 6
- C) Error
- D) None

Answer: A

5. Which symbol is used to enforce keyword-only arguments?

- A) /
- B) *
- C) **
- D) :

Answer: B

6. What is the output?

```
def f(*args):  
    return sum(args)  
print(f(1,2,3))
```

A) [1,2,3]

B) 6

C) Error

D) (1,2,3)

Answer: B

7. What is the output?

```
def f(**kwargs):  
    return kwargs.get("x",0)  
print(f(y=5))
```

A) 5

B) 0

C) None

D) Error

Answer: B

8. Which of these is not valid?

A) def f(x,y=5,z): return x+y+z

B) def f(x,y,z=5): return x+y+z

C) def f(x=1,y=2,z=3): return x+y+z

D) def f(x,y,z): return x+y+z

Answer: A

9. What is the output?

```
def f(x=[]):  
    x.append(1)  
    return x  
print(f(),f())
```

A) [1] [1]

B) [1] [1,1]

C) Error

D) None

Answer: B

10. Which function is used to apply another function cumulatively to a sequence?

- A) map()
- B) filter()
- C) reduce()
- D) apply()

Answer: C

11. What is the output?

```
f = lambda x,y=2: x**y  
print(f(3), f(3,3))
```

- A) 9 27
- B) 6 9
- C) 9 3
- D) Error

Answer: A

12. Which decorator is used to define a static method?

- A) @classmethod
- B) @staticmethod
- C) @abstractmethod
- D) @method

Answer: B

13. Which decorator receives the class as its first argument?

- A) @staticmethod
- B) @classmethod
- C) @abstractmethod
- D) @property

Answer: B

14. Which decorator is used to define getters and setters?

- A) @classmethod
- B) @staticmethod
- C) @property
- D) @method

Answer: C

15. What is the output?

```
def f():  
    yield 1  
    yield 2
```

```
print(list(f()))
```

A) [1]

B) [1,2]

C) (1,2)

D) Error

Answer: B

16. What type of function is defined using `yield`?

A) Normal

B) Generator

C) Lambda

D) Closure

Answer: B

17. Which built-in returns memory address of function?

A) id()

B) hash()

C) ref()

D) loc()

Answer: A

18. What is the output?

```
def f(x):
```

```
    if x==0: return 0
```

```
    else: return x+f(x-1)
```

```
print(f(3))
```

A) 3

B) 6

C) 10

D) Error

Answer: B

19. Which exception occurs if recursion exceeds depth?

A) RecursionError

B) OverflowError

C) RuntimeError

D) StackError

Answer: A

20. Which module provides tail recursion optimization in Python?

- A) functools
- B) sys
- C) Python does not support it
- D) recursion

Answer: C

21. Which built-in function applies a function to all items of an iterable?

- A) map()
- B) filter()
- C) reduce()
- D) zip()

Answer: A

22. Which built-in filters items of a list based on a condition?

- A) map()
- B) filter()
- C) reduce()
- D) all()

Answer: B

23. What is the output?

```
def f(x,y):  
    return x if x>y else y  
print(f(4,7))
```

- A) 4
- B) 7
- C) 11
- D) Error

Answer: B

24. Which function can execute another function by name?

- A) call()
- B) eval()
- C) exec()
- D) both B and C

Answer: D

25. Which keyword is used to declare a variable from enclosing scope?

- A) global
- B) nonlocal

C) extern

D) static

Answer: B

26. Which function is called when object is used as a function?

A) __init__

B) __call__

C) __func__

D) __exec__

Answer: B

27. Which of these can replace switch-case using functions?

A) Dictionary of functions

B) if-else only

C) lambda only

D) match only

Answer: A

28. What is the output?

```
def f(a,b,*c):  
    return len(c)  
print(f(1,2,3,4,5))
```

A) 5

B) 3

C) 2

D) Error

Answer: B

29. Which module provides function caching?

A) functools

B) itertools

C) collections

D) time

Answer: A

30. What is the output?

```
from functools import lru_cache  
@lru_cache  
def f(x):  
    return x*2
```

```
print(f(2),f(2))
```

A) 4 4

B) 4 2

C) 2 4

D) Error

Answer: A

31. Which is true about lambda functions?

A) Can have multiple statements

B) Can only contain single expression

C) Cannot return values

D) Must be recursive

Answer: B

32. What is the output?

```
add = lambda x,y: x+y
```

```
print(add("Hi", "There"))
```

A) HiThere

B) Error

C) Hi There

D) None

Answer: A

33. Which decorator can modify function execution?

A) Higher-order function

B) Wrapper

C) Both A and B

D) None

Answer: C

34. Which built-in function returns all attributes and methods of a function?

A) vars()

B) dir()

C) list()

D) attr()

Answer: B

35. What is the output?

```
def f(x=[]):
```

```
    x.append(len(x))
```

```
    return x
print(f(),f(),f())
A) [0][0][0]
B) [0][0,1][0,1,2]
C) [0][0,0][0,0,0]
D) Error
Answer: B
```

36. Which is true about function default arguments?

- A) Evaluated at compile time
- B) Evaluated once when defined
- C) Evaluated each time function runs
- D) Never evaluated

Answer: B

37. What is the output?

```
def f(x, y, *, z=3):
    return x+y+z
print(f(1,2,z=4))
```

- A) 7
- B) 6
- C) Error
- D) None

Answer: A

38. Which is true about Python recursion?

- A) Optimized automatically
- B) Limited by sys.getrecursionlimit()
- C) No limit
- D) Must use tail recursion

Answer: B

39. Which decorator turns method into class method?

- A) @staticmethod
- B) @classmethod
- C) @property
- D) @abstractmethod

Answer: B

40. What is the output?


```
def outer():  
    x="Hello"  
    def inner():  
        return x+" World"  
    return inner
```

f = outer()

print(f())

A) Hello

B) World

C) Hello World

D) Error

Answer: C

41. Which function executes code from string?

A) eval()

B) exec()

C) compile()

D) all of these

Answer: D

42. Which decorator preserves original function metadata?

A) @functools.lru_cache

B) @functools.wraps

C) @staticmethod

D) @classmethod

Answer: B

43. What is the output?

```
def f():
```

```
    yield from [1,2,3]
```

```
print(list(f()))
```

A) [1]

B) [1,2,3]

C) Error

D) None

Answer: B

44. Which function forces function call stack trace?

A) traceback()

B) sys._getframe()

- C) inspect()
- D) all of these

Answer: D

45. Which is true about *args?

- A) Passes variable-length arguments as tuple
- B) Passes variable-length arguments as list
- C) Passes variable-length arguments as dictionary
- D) Passes nothing

Answer: A

46. Which is true about **kwargs?

- A) Passes variable-length arguments as tuple
- B) Passes variable-length arguments as dictionary
- C) Passes only integers
- D) Passes list

Answer: B

47. What is the output?

```
def f(x,y):  
    return x//y  
print(f(7,3))
```

- A) 2.3
- B) 2
- C) 3
- D) Error

Answer: B

48. Which is true about Python functions?

- A) First-class citizens
- B) Can be assigned to variables
- C) Can be passed as arguments
- D) All of the above

Answer: D

49. Which function creates partial functions?

- A) functools.partial()
- B) itertools.partial()
- C) lambda.partial()
- D) reduce.partial()

Answer: A

50. Which function returns source code of another function?

A) inspect.getsource()

B) sys.getsource()

C) code()

D) dir()

Answer: A