
Python Programming Skills Exam

Instructions:
- Each question has one correct answer.
- Select the most appropriate option for each question.
- Read each question carefully before answering.

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1. Basics of Python

1. What will the following code print?
   ```python
   print(2 * 3 ** 2)
   ```
   a) 36
   b) 18
   c) 12
   d) 14

2. Which of the following is the correct way to write a comment in Python?
   a) `# This is a comment`
   b) `// This is a comment`
   c) `/* This is a comment */`
   d) `<!-- This is a comment -->`

3. Which of the following data types is mutable?
   a) int
   b) str
   c) tuple
   d) list

4. What is the output of the following code?
   ```python
   print(type(3.14))
   ```
   a) `<class 'int'>`
   b) `<class 'float'>`
   c) `<class 'complex'>`
   d) `<class 'str'>`

5. What will the following code output?
   ```python
   a = 10
   ```

```
b = 20
a, b = b, a
print(a, b)
```

a) 10 20
b) 20 10
c) 0 0
d) Error

6. Which of the following statements will cause an error?
a) `print("Hello World")`
b) `x = 10`
c) `print(Hello World)`
d) `y = "Hello" + " World"`

7. What is the correct syntax for creating a function in Python?
a) `function myFunction():`
b) `def myFunction():`
c) `create myFunction():`
d) `function: myFunction()`

8. What will be the output of the following code?
```python
x = "Hello"
print(x[0])
```
a) `H`
b) `e`
c) `o`
d) `Hello`

9. Which operator is used to compare two values?
a) `=`
b) `==`
c) `===`
d) `!=`

10. Which of the following is a valid variable name in Python?
a) `1variable`
b) `variable_name`
c) `variable-name`
d) `var iable`

2. Control Flow (If, For, While)

11. What will be the output of the following code?
```python
```

```
if 4 > 2:
    print("Yes")
else:
    print("No")
```

a) `Yes`
b) `No`
c) `Error`
d) None

12. How many times will the following loop run?

```python
for i in range(3):
    print(i)
```

a) 2
b) 3
c) 4
d) 5

13. What will be the output of the following code?

```python
i = 0
while i < 3:
    i += 1
print(i)
```

a) 0
b) 1
c) 2
d) 3

14. Which of the following will correctly check if a variable `x` is not equal to 10?

a) `if x <> 10:`
b) `if x =! 10:`
c) `if x != 10:`
d) `if x ==! 10:`

15. What will be the output of the following code?

```python
for i in range(1, 5):
    if i == 3:
        continue
    print(i)
```

a) 1 2 3 4

b) 1 2 4
c) 1 3 4
d) 2 3 4

16. What will be the output of the following code?
```python
for i in range(5):
    if i == 3:
        break
    print(i)
```
a) 0 1 2
b) 0 1 2 3
c) 1 2 3
d) 0 1 2 3 4

17. Which statement can be used to exit a loop prematurely?
a) `exit`
b) `stop`
c) `break`
d) `end`

18. What will be the output of the following code?
```python
x = 10
if x % 2 == 0:
    print("Even")
else:
    print("Odd")
```
a) `Even`
b) `Odd`
c) `Error`
d) None

19. What will be the output of the following code?
```python
x = 5
y = 10
if x > y:
    print("x is greater")
else:
    print("y is greater")
```
a) `x is greater`
b) `y is greater`
c) `Error`

d) None

20. What will be the output of the following code?
```python
for i in "Python":
    print(i)
```
a) `P`
b) `n`
c) `Python`
d) Each character on a new line

3. Functions

21. What is the output of the following code?
```python
def add(a, b):
    return a + b
print(add(2, 3))
```
a) 2
b) 3
c) 5
d) None

22. What is the return type of the `input()` function in Python?
a) `int`
b) `float`
c) `str`
d) `bool`

23. What will be the output of the following code?
```python
def func(x):
    return x * 2
print(func(4))
```
a) 4
b) 8
c) 16
d) None

24. What will be the output of the following code?
```python
def my_func():
    print("Hello")
my_func()
```

```
a) `Hello`
b) `Error`
c) `None`
d) No output

25. Which of the following is the correct way to call a function named `my_function`?
a) `call my_function()`
b) `my_function()`
c) `my_function`
d) `function my_function()`

26. What is the output of the following code?
```python
def multiply(x, y):
    return x * y
result = multiply(3, 4)
print(result)
```
a) 7
b) 12
c) 34
d) None

27. What will be the output of the following code?
```python
def greet(name="Guest"):
    return "Hello, " + name
print(greet("Alice"))
```
a) `Hello, Guest`
b) `Hello, Alice`
c) `Guest`
d) `Alice`

28. What will be the output of the following code?
```python
def add(a, b=5):
    return a + b
print(add(3))
```
a) 8
b) 3
c) Error
d) None
```

29. What is the output of the following code?
```python
def square(x):
    return x * x
print(square(2))
```
a) 2
b) 4
c) 8
d) None

30. What is the output of the following code?
```python
def say_hello():
    return "Hello"
print(say_hello() + " World")
```
a) `Hello`
b) `World`
c) `Hello World`
d) `Error`

4. Match Case

31. What will be the output of the following code?
```python
match 2:
    case 1:
        print("One")
    case 2:
        print("Two")
    case _:
        print("Other")
```
a) `One`
b) `Two`
c) `Other`
d) `Error`

32. What is the purpose of the underscore `_` in a `match` case?

a) It represents the default case.
b) It represents a variable.
c) It is used for string matching.
d) It is used for pattern matching.

33. What will be the output of the following code?
```python
value = 10
match value:
    case 5:
        print("Five")
    case 10:
        print("Ten")
    case _:
        print("Other")
```
a) `Five`
b) `Ten`
c) `Other`
d) `Error`

34. What will be the output of the following code?
```python
x = 3
match x:
    case 1 | 2:
        print("One or Two")
    case 3:
        print("Three")
    case _:
        print("Other")
```
a) `One or Two`
b) `Three`
c) `Other`
d) `Error`

35. Which of the following statements about `match` case is true?
a) `match` case can only be used with integers.
b) `match` case can be used with strings, tuples, and other data types.
c) `match` case is the same as `switch` case in other languages.
d) `match` case must have an `_` case.

36. What will be the output of the following code?
```python
my_var = "cat"
match my_var:
    case "dog":
        print("It's a dog")
    case "cat":
        print("It's a cat")
```

```
    case _:
        print("It's something else")
```

a) `It's a dog`
b) `It's a cat`
c) `It's something else`
d) `Error`

37. What will be the output of the following code?

```python
x = 4
match x:
    case 1:
        print("One")
    case 2:
        print("Two")
    case _:
        print("Unknown")
```

a) `One`
b) `Two`
c) `Unknown`
d) `Error`

38. What will be the output of the following code?

```python
def func(value):
    match value:
        case "apple" | "banana":
            return "Fruit"
        case "carrot":
            return "Vegetable"
        case _:
            return "Unknown"
print(func("apple"))
```

a) `Fruit`
b) `Vegetable`
c) `Unknown`
d) `Error`

39. What will be the output of the following code?

```python
color = "green"
match color:
    case "red":
        print("Stop")
```

```
    case "yellow":
        print("Caution")
    case "green":
        print("Go")
    case _:
        print("Invalid color")
```
a) `Stop`
b) `Caution`
c) `Go`
d) `Invalid color`

40. Which of the following is true about the `match` case syntax?
a) It is only available in Python 3.10 and later.
b) It is available in all Python versions.
c) It is the same as the `if-else` structure.
d) It requires a default case.

5. F-Strings

41. What will be the output of the following code?
```python
name = "Alice"
print(f"Hello, {name}")
```
a) `Hello, {name}`
b) `Hello, Alice`
c) `Hello, name`
d) `Error`

42. What will be the output of the following code?
```python
age = 25
print(f"I am {age} years old")
```
a) `I am {age} years old`
b) `I am 25 years old`
c) `I am years old`
d) `Error`

43. What will be the output of the following code?
```python
value = 3.14
print(f"The value of pi is {value:.2f}")
```
a) `The value of pi is {value:.2f}`
b) `The value of pi is 3.1`

c) `The value of pi is 3.14`
d) `Error`

44. What will be the output of the following code?
```python
name = "Bob"
age = 30
print(f"{name} is {age} years old")
```
a) `Bob is 30 years old`
b) `Bob is years old`
c) `name is age years old`
d) `Error`

45. What is the advantage of using f-strings in Python?
a) Easier string formatting
b) Faster than other formatting methods
c) Supports expressions inside curly braces
d) All of the above

46. What will be the output of the following code?
```python
x = 10
y = 20
print(f"x + y = {x + y}")
```
a) `x + y = {x + y}`
b) `x + y = 10 + 20`
c) `x + y = 30`
d) `Error`

47. What will be the output of the following code?
```python
name = "Eve"
print(f"Hello, {name.upper()}")
```
a) `Hello, Eve`
b) `Hello, EVE`
c) `Hello, {name.upper()}`
d) `Error`

48. Which of the following can be used inside an f-string?
a) Variables
b) Function calls
c) Expressions
d) All of the above

49. What will be the output of the following code?
    ```python
    pi = 3.14159
    print(f"{pi:.1f}")
    ```
    a) `3.1`
    b) `3.14`
    c) `3.141`
    d) `3.14159`

50. What will be the output of the following code?
    ```python
    price = 49.99
    print(f"The price is ${price:.2f}")
    ```
    a) `The price is $49.99`
    b) `The price is $50`
    c) `The price is $49`
    d) `The price is $49.9900`

6. Lists

51. What will be the output of the following code?
    ```python
    my_list = [1, 2, 3, 4]
    print(len(my_list))
    ```
    a) 3
    b) 4
    c) 5
    d) `Error`

52. What will be the output of the following code?
    ```python
    my_list = ["apple", "banana", "cherry"]
    print(my_list[1])
    ```
    a) `apple`
    b) `banana`
    c) `cherry`
    d) `Error`

53. What will be the output of the following code?
    ```python
    my_list = [1, 2, 3]
    my_list.append(4)
    ```

```
print(my_list)
```
a) `[1, 2, 3]`
b) `[1, 2, 3, 4]`
c) `[4, 1, 2, 3]`
d) `Error`

54. What will be the output of the following code?
```python
my_list = [5, 10, 15, 20]
print(my_list[0:2])
```
a) `[5, 10]`
b) `[5, 10, 15]`
c) `[15, 20]`
d) `Error`

55. Which method is used to remove the last element from a list?
a) `remove()`
b) `delete()`
c) `pop()`
d) `cut()`

56. What will be the output of the following code?
```python
my_list = [1, 2, 3]
my_list.insert(1, "a")
print(my_list)
```
a) `[1, 2, 3]`
b) `[1, "a", 2, 3]`
c) `[1, 2, 3, "a"]`
d) `["a", 1, 2, 3]`

57. What will be the output of the following code?
```python
my_list = [7, 8, 9]
my_list.remove(8)
print(my_list)
```
a) `[7, 9]`
b) `[8, 9]`
c) `[7, 8, 9]`
d) `Error`

58. What will be the output of the following code?

```python
my_list = [2, 4, 6, 8]
print(my_list[-1])
```

a) 2
b) 4
c) 6
d) 8

59. What will be the output of the following code?
```python
my_list = [1, 2, 3, 4]
my_list[2] = 10
print(my_list)
```
a) `[1, 2, 3, 4]`
b) `[1, 2, 10, 4]`
c) `[10, 1, 2, 4]`
d) `Error`

60. Which of the following statements about lists is true?
a) Lists are immutable.
b) Lists can contain elements of different data types.
c) Lists are unordered collections.
d) Lists cannot be nested.

7. Sets

61. What will be the output of the following code?
```python
my_set = {1, 2, 3, 4}
print(len(my_set))
```
a) 3
b) 4
c) 5
d) `Error`

62. What will be the output of the following code?
```python
my_set = {1, 2, 3, 3, 4}
print(my_set)
```
a) `{1, 2, 3, 4}`
b) `{1, 2, 3, 3, 4}`
c) `{4, 3, 2, 1}`

d) `Error`

63. What will be the output of the following code?
```python
my_set = {1, 2, 3}
my_set.add(4)
print(my_set)
```
a) `{1, 2, 3}`
b) `{1, 2, 3, 4}`
c) `{4, 1, 2, 3}`
d) `Error`

64. What will be the output of the following code?
```python
my_set = {5, 10, 15}
my_set.remove(10)
print(my_set)
```
a) `{5, 15}`
b) `{10, 15}`
c) `{5, 10, 15}`
d) `Error`

65. What will be the output of the following code?
```python
my_set = {1, 2, 3}
my_set.update([4, 5])
print(my_set)
```
a) `{1, 2, 3}`
b) `{1, 2, 3, 4, 5}`
c) `{4, 5}`
d) `Error`

66. What will be the output of the following code?
```python
set1 = {1, 2, 3}
set2 = {2, 3, 4}
print(set1 & set2)
```
a) `{1, 2, 3}`
b) `{2, 3}`
c) `{1, 4}`
d) `{}`

67. What will be the output of the following code?

```python
set1 = {1, 2, 3}
set2 = {2, 3, 4}
print(set1 | set2)
```
a) `{1, 2, 3, 4}`
b) `{2, 3}`
c) `{1, 2, 3}`
d) `{}`

68. What will be the output of the following code?
```python
set1 = {1, 2, 3}
set2 = {2, 3, 4}
print(set1 - set2)
```
a) `{1}`
b) `{4}`
c) `{2, 3}`
d) `{}`

69. What will be the output of the following code?
```python
my_set = {1, 2, 3}
my_set.discard(2)
print(my_set)
```
a) `{1, 3}`
b) `{2, 3}`
c) `{1, 2, 3}`
d) `Error`

70. Which of the following statements about sets is true?
a) Sets are ordered collections.
b) Sets allow duplicate elements.
c) Sets are mutable.
d) Sets can contain mutable elements like lists.

8. Tuples

71. What will be the output of the following code?
```python
my_tuple = (1, 2, 3, 4)
print(len(my_tuple))
```
a) 3
b) 4

c) 5
d) `Error`

72. What will be the output of the following code?
```python
my_tuple = ("apple", "banana", "cherry")
print(my_tuple[1])
```
a) `apple`
b) `banana`
c) `cherry`
d) `Error`

73. What will be the output of the following code?
```python
my_tuple = (1, 2, 3)
my_tuple = my_tuple + (4,)
print(my_tuple)
```
a) `(1, 2, 3)`
b) `(1, 2, 3, 4)`
c) `(4, 1, 2, 3)`
d) `Error`

74. What will be the output of the following code?
```python
my_tuple = (5, 10, 15, 20)
print(my_tuple[0:2])
```
a) `(5, 10)`
b) `(5, 10, 15)`
c) `(15, 20)`
d) `Error`

75. What will be the output of the following code?
```python
my_tuple = (1, 2, 3)
print(my_tuple * 2)
```
a) `(1, 2, 3)`
b) `(1, 2, 3, 1, 2, 3)`
c) `(2, 4, 6)`
d) `Error`

76. What will be the output of the following code?
```python
my_tuple = (7, 8, 9)
```

```
my_tuple = my_tuple[1:]
print(my_tuple)
```

a) `(7, 8, 9)`
b) `(8, 9)`
c) `(7, 8)`
d) `Error`

77. What will be the output of the following code?

```python
my_tuple = (2, 4, 6, 8)
print(my_tuple[-1])
```

a) 2
b) 4
c) 6
d) 8

78. What will be the output of the following code?

```python
my_tuple = (1, 2, 3, 4)
print(2 in my_tuple)
```

a) `True`
b) `False`
c) `Error`
d) None

79. What will be the output of the following code?

```python
my_tuple = (1, 2, 3)
x, y, z = my_tuple
print(x, y, z)
```

a) `1 2 3`
b) `3 2 1`
c) `Error`
d) None

80. Which of the following statements about tuples is true?
a) Tuples are mutable.
b) Tuples can contain elements of different data types.
c) Tuples are unordered collections.
d) Tuples cannot be nested.

9. Dictionaries

81. What will be the output of the following code?
    ```python
    my_dict = {"name": "Alice", "age": 25}
    print(my_dict["name"])
    ```
    a) `Alice`
    b) `25`
    c) `name`
    d) `Error`

82. What will be the output of the following code?
    ```python
    my_dict = {"name": "Alice", "age": 25}
    print(len(my_dict))
    ```
    a) 1
    b) 2
    c) 3
    d) `Error`

83. What will be the output of the following code?
    ```python
    my_dict = {"name": "Alice", "age": 25}
    my_dict["age"] = 26
    print(my_dict["age"])
    ```
    a) 25
    b) 26
    c) `Error`
    d) None

84. What will be the output of the following code?
    ```python
    my_dict = {"name

": "Alice", "age": 25}
    my_dict["gender"] = "Female"
    print(my_dict)
    ```
    a) `{"name": "Alice", "age": 25}`
    b) `{"name": "Alice", "age": 25, "gender": "Female"}`
    c) `{"gender": "Female"}`
    d) `Error`

85. What will be the output of the following code?
    ```python
    ```

```
my_dict = {"name": "Alice", "age": 25}
print("age" in my_dict)
```

a) `True`
b) `False`
c) `Error`
d) None

86. What will be the output of the following code?

```python
my_dict = {"name": "Alice", "age": 25}
del my_dict["age"]
print(my_dict)
```

a) `{"name": "Alice"}`
b) `{"name": "Alice", "age": 25}`
c) `{"age": 25}`
d) `Error`

87. What will be the output of the following code?

```python
my_dict = {"name": "Alice", "age": 25}
print(my_dict.get("gender"))
```

a) `Female`
b) `None`
c) `Error`
d) `gender`

88. What will be the output of the following code?

```python
my_dict = {"name": "Alice", "age": 25}
print(my_dict.keys())
```

a) `["name", "age"]`
b) `dict_keys(["name", "age"])`
c) `dict_keys`
d) `Error`

89. What will be the output of the following code?

```python
my_dict = {"name": "Alice", "age": 25}
print(my_dict.values())
```

a) `["Alice", 25]`
b) `dict_values(["Alice", 25])`
c) `dict_values`

d) `Error`

90. Which of the following statements about dictionaries is true?
    a) Dictionary keys must be mutable.
    b) Dictionary values must be unique.
    c) Dictionaries are ordered collections.
    d) Dictionaries cannot have duplicate keys.