PYTHON BASIC to ADVANCE MCQ Practice SET

Basic Level (Questions 1-50)

1. **Which of the following is a valid variable name in Python?**

   a) 123variable
   b) _my_variable
   c) break
   d) 2nd_variable

2. **What does the len() function return?**

3. **What does the range(3) function return?**

   a) [0, 1, 2, 3]
   b) [1, 2, 3]
   c) [0, 1, 2]
   d) [3, 3, 3]

4. **Which statement is used for exiting a loop prematurely?**

   a) terminate
   b) exit
   c) break
   d) stop

5. **What is the correct way to comment multiple lines in Python?**

   a) // comment
   b) /* comment */
   c) # comment
   d) -- comment

6. **What is the result of the expression 5 / 2 in Python 3?**

   a) 2.5
   b) 2
   c) 2.0
   d) 2.2

7. **Which data type is used to store a sequence of characters in Python?**

a) list
b) tuple
c) str
d) set

8. **What is the purpose of the elif keyword in an if-elif-else statement?**

a) It is short for "else if" and is used for additional conditions.
b) It is a typo and should be avoided.
c) It stands for "else only if" and is used for exclusive conditions.
d) It is used to terminate the if statement.

9. **Which of the following is a mutable data type in Python?**

a) int
b) float
c) list
d) tuple

10. **What is the correct way to open a file named "example.txt" for writing in Python?**

a) **file = open("example.txt", "r")**
b) **file = open("example.txt", "w")**
c) **file = open("example.txt", "a")**
d) **file = open("example.txt", "x")**

12. **Which of the following is a valid way to define an empty list in Python?**

a) **list = {}**
b) **list = []**
c) **list = [None]**
d) **list = [0]**

13. **What will the expression 2 ** 3 evaluate to?**

a) 5
b) 6
c) 8
d) 16

14. **How can you convert a string to lowercase in Python?**

a) **lowercase(string)**
b) **string.lower()**
c) **to_lower(string)**
d) **stringcase.lower()**

15. **What is the purpose of the else clause in a try-except block?**

a) It handles the exception.
b) It is executed if there is no exception.
c) It is optional and not needed.
d) It is used to terminate the try block.

16. **Which of the following is the correct way to check if a key is in a dictionary?**

a) **key in dict**
b) **dict.contains(key)**
c) **dict.has_key(key)**
d) **key.contains(dict)**

17. **What will the expression 10 % 3 evaluate to?**

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

18. **Which of the following is a correct way to create a tuple with a single element?**

a) **tuple = (1)**
b) **tuple = 1,**
c) **tuple = [1]**
d) **tuple = (1,)**

19. **How can you remove an item from a list by value?**

a) **list.remove(value)**
b) **list.delete(value)**
c) **list.pop(value)**
d) **list.discard(value)**

20. **What is the purpose of the pass statement in Python?**

a) It terminates the program.
b) It is a comment that is ignored by the interpreter.
c) It is a placeholder that does nothing.
d) It is used to print a message.

21. **Which of the following is not a valid type in Python?**

a) int
b) float
c) complex
d) decimal

22. **What is the purpose of the continue statement in a loop?**

a) It exits the loop.
b) It skips the rest of the code inside the loop and continues with the next iteration.
c) It is used to check a condition.
d) It prints a message and continues with the loop.

23. **Which of the following is a valid way to concatenate two lists?**

a) **list1 + list2**
b) **list1.append(list2)**
c) **concat(list1, list2)**
d) **list1.extend(list2)**

24. **What does the ord() function do in Python?**

a) Converts a character to its ASCII code.
b) Converts an ASCII code to a character.
c) Calculates the square root of a number.
d) Rounds a floating-point number to the nearest integer.

25. **Which of the following is true about Python indentation?**

a) It is optional and does not affect the program.
b) It is used for decoration and does not affect the program's structure.
c) It is required and defines the structure of the program.
d) It is recommended but not necessary for readability.

26. **What is the purpose of the len() function?**

a) It returns the length of a list or string.
b) It performs arithmetic operations.
c) It checks if a variable is defined.
d) It prints the length of a variable.

27. **How do you declare a constant variable in Python?**

a) By using the **const** keyword.
b) By using the **final** keyword.
c) By convention, using all uppercase letters.
d) Constants are not allowed in Python.

28. **Which of the following is the correct syntax for a function definition in Python?**

a) **def function_name(parameters) return result**
b) **function_name(parameters): result**
c) **function_name(parameters) { return result }**
d) **def function_name(parameters): return result**

29. **What will the code print("Hello, World!"[7:]) output?**

a) Hello
b) World!
c) ,
d) o, World!

30. **Which of the following statements is used for importing a module in Python?**

a) **include module**
b) **import module**
c) **require module**
d) **use module**

31. **What is the result of the expression not True or False?**

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

32. **How can you check if a variable is of a certain type in Python?**

a) **type(variable) == "int"**
b) **variable.is_type(int)**
c) **isinstance(variable, int)**
d) **variable.typeOf(int)**

33. **What will the code range(1, 5) generate?**

a) [1, 2, 3, 4, 5]
b) [1, 2, 3, 4]
c) [0, 1, 2, 3, 4]
d) [0, 1, 2, 3, 4, 5]

34. **Which of the following is used to read input from the user in Python?**

a) **read_input()**
b) **input()**
c) **get_input()**
d) **user_input()**

35. **What does the max() function return?**

a) The minimum value in a list
b) The sum of elements in a list
c) The maximum value in a list
d) The average of elements in a list

36. **What is the purpose of the break statement in a loop?**

a) It skips the rest of the code inside the loop and continues with the next iteration.
b) It exits the loop prematurely.
c) It terminates the program.
d) It is used to check a condition.

37. **Which of the following is used to check if two variables refer to the same object in memory?**

a) **var1 is var2**
b) **var1 == var2**
c) **var1.equals(var2)**
d) **var1 isEquals var2**

38. **What is the result of the expression 4 / 2 in Python 2?**

a) 2
b) 2.0
c) 1.5
d) 1

39. **Which of the following is a correct way to define a function in Python?**

a) **function my_function(parameters):**
b) **def my_function(parameters):**
c) **def my_function parameters:**
d) **function my_function(parameters) {**

40. **What is the purpose of the round() function in Python?**

a) It rounds a floating-point number to the nearest integer.
b) It returns the ceiling value of a number.
c) It truncates the decimal part of a number.
d) It calculates the square root of a number.

41. **Which of the following is used to iterate over a sequence in Python?**

a) **for each in sequence:**
b) **foreach in sequence:**
c) **loop(sequence):**
d) **iterate(sequence):**

42. **What is the purpose of the del statement in Python?**

a) It is used to delete a file.
b) It is used to remove an element from a list.
c) It is used to delete a variable or object.
d) It is used to delete a function.

43. **What is the correct way to open a file named "example.txt" for reading in Python?**

a) **file = open("example.txt", "w")**
b) **file = open("example.txt", "r")**
c) **file = open("example.txt", "a")**
d) **file = open("example.txt", "x")**

44. **Which of the following is the correct way to define a list in Python?**

a) **list = [1, 2, 3, 4]**
b) **list = {1, 2, 3, 4}**
c) **list = (1, 2, 3, 4)**
d) **list = "1, 2, 3, 4"**

45. **What is the result of the expression 5 // 2 in Python?**

a) 2.5
b) 2
c) 2.0
d) 3

46. **What does the str() function do in Python?**

a) Converts a string to an integer.
b) Converts a string to lowercase.
c) Converts a variable to a string.
d) Calculates the square root of a number.

47. **Which of the following is used to check if a value is not equal to another value in Python?**
a) **!=**
b) **<>**
c) **!==**
d) **=/=**

48. **What is the purpose of the __doc__ attribute in Python?**

a) It is used to store the documentation string of a module, class, or function.
b) It is a reserved keyword and cannot be used.
c) It is used to access the dictionary of a class.
d) It is used to define the documentation of a variable.

49. **How can you add a comment in Python?**

a) **comment("This is a comment")**
b) **/* This is a comment */**
c) **# This is a comment**
d) **// This is a comment**

50. **Which of the following statements is true about Python variables?**

a) Variables must be declared before use.
b) Variables can be of any data type without declaration.

c) Variable names are case-sensitive in Python.
d) Variables cannot be reassigned after being defined.

Intermediate Level (Questions 1-20)

1. **Question:** What does the **zip()** function do in Python?
    - A) Combines two lists into a dictionary
    - B) Combines two lists into a tuple
    - C) Combines two lists element-wise
    - D) Sorts a list in ascending order

2. **Question:** In Python, what is the purpose of the **__init__** method in a class?
    - A) To initialize the class variables
    - B) To define the class methods
    - C) To create an instance of the class
    - D) To print the class attributes

3. **Question:** What is the purpose of the **super()** function in Python?
    - A) Calls the parent class method
    - B) Calls the child class method
    - C) Creates a new instance of the class
    - D) Terminates the program

4. **Question:** Which of the following is used for handling exceptions in Python?
    - A) **try** and **except**
    - B) **if** and **else**
    - C) **while** loop
    - D) **for** loop

5. **Question:** What is the purpose of the **yield** keyword in Python?

- A) Terminates a function
- B) Returns a value from a function
- C) Pauses the execution and saves the state
- D) Declares a variable

6. **Question:** How can you open a file in binary mode in Python?
   - A) **open("file.txt", "r")**
   - B) **open("file.txt", "b")**
   - C) **open("file.txt", "wb")**
   - D) **open("file.txt", "br")**

7. **Question:** What is the purpose of the **__str__** method in Python?
   - A) Converts an object to a string
   - B) Creates a new string
   - C) Concatenates two strings
   - D) Checks if a string is empty

8. **Question:** What is the difference between a shallow copy and a deep copy in Python?
   - A) Shallow copy only duplicates the outermost elements
   - B) Deep copy duplicates all elements including nested elements
   - C) Shallow copy duplicates everything
   - D) Deep copy only duplicates the outermost elements

9. **Question:** Which module is used for regular expressions in Python?
   - A) **regex**
   - B) **rexp**
   - C) **regexpy**

- D) **re**

10. **Question:** What is the purpose of the **map** function in Python?
    - A) Applies a function to each element of an iterable
    - B) Creates a map of key-value pairs
    - C) Filters elements from an iterable
    - D) Sorts an iterable in-place

11. **Question:** How is multiple inheritance implemented in Python?
    - A) Using interfaces
    - B) Using classes and mixins
    - C) Using abstract classes
    - D) Using decorators

12. **Question:** What is the purpose of the **global** keyword in Python?
    - A) Declares a variable as global
    - B) Defines a global function
    - C) Specifies the global scope
    - D) Imports global variables

13. **Question:** What is the purpose of the ***args** and ****kwargs** in function definitions?
    - A) Represent variable-length argument lists
    - B) Indicate optional parameters
    - C) Specify required parameters
    - D) Restrict the number of arguments

14. **Question:** Which of the following is a decorator in Python?

- A) **@classmethod**
- B) **@staticmethod**
- C) **@property**
- D) All of the above

15. **Question:** What is the purpose of the **__iter__** method in Python?
    - A) Initializes an iterator
    - B) Returns an iterator object
    - C) Iterates over the elements of an object
    - D) Checks if an object is iterable
16. **Question:** How can you execute a Python script from the command line with arguments?
    - A) **python script.py -arg1 -arg2**
    - B) **python -m script -arg1 -arg2**
    - C) **python -script.py arg1 arg2**
    - D) **python script.py arg1 arg2**
17. **Question:** What does the **itertools.cycle** function do?
    - A) Repeats an iterable indefinitely
    - B) Creates a cycle of integers
    - C) Generates a random sequence
    - D) Iterates through a given range
18. **Question:** Which of the following statements is true about the Global Interpreter Lock (GIL) in Python?
    - A) It prevents multiple threads from executing Python bytecodes at once
    - B) It allows multiple threads to execute Python bytecodes concurrently
    - C) It is used to lock global variables
    - D) It is only relevant for multiprocessing

19. **Question:** What is the purpose of the **collections.Counter** class in Python?

    - A) Counts the number of elements in a list
    - B) Creates a counter object for counting occurrences of elements
    - C) Counts the number of unique elements in a set
    - D) Performs arithmetic operations on counters

20. **Question:** What is the output of the following code snippet?

```
def foo(x, y=5, *args, **kwargs):
        return x + y
result = foo(3, 7, 2, a=1, b=2)
print(result)
```

    A) 12

    B) 10

    C) 8

    D) 7

Advanced Level (Questions 1-20)

1. **What is the purpose of the __init__ method in a Python class?**

   a) Initializing class variables
   b) Defining instance methods
   c) Creating a new instance of the class
   d) Destroying an instance of the class

2. **Which of the following is true about decorators in Python?**

   a) Decorators are used to add comments to a function.
   b) Decorators are used to modify the behavior of a function.
   c) Decorators can only be applied to class methods.
   d) Decorators can only be used with built-in functions.

3. **What is the Global Interpreter Lock (GIL) in CPython?**

   a) It ensures thread safety in Python programs.
   b) It prevents multiple threads from executing Python bytecodes at once.
   c) It is used for garbage collection in Python.
   d) It allows multiple processes to run Python code concurrently.

4. **Explain the purpose of the __slots__ attribute in a Python class.**

   a) It defines the class's attributes.
   b) It restricts the creation of new attributes in instances.
   c) It is used for dynamic attribute creation.
   d) It specifies the class's methods.

5. **What is the purpose of the yield keyword in Python?**

   a) It terminates a function and returns a value.
   b) It defines a generator function and produces a sequence of values.
   c) It raises an exception and stops the program.
   d) It is used for asynchronous programming.

6. **In the context of Python's memory management, what is reference counting?**

   a) It counts the number of references to an object and deallocates it when the count reaches zero.
   b) It counts the lines of code that reference an object.
   c) It is a mechanism for checking the equality of references.
   d) It counts the number of instances of a class.

7. **What is the purpose of the super() function in Python?**

   a) It is used to invoke the superclass constructor.
   b) It is used to call a method of the parent class.
   c) It is used to create an instance of a superclass.
   d) It is used to define a supermethod in a class.

8. **Which of the following is true about Python's asyncio module?**

   a) It is used for synchronous programming.
   b) It is used for working with regular expressions.
   c) It provides support for asynchronous I/O operations.
   d) It is used for creating graphical user interfaces.

9. **What is the purpose of the __str__ method in Python?**

   a) It converts an object to a string representation.
   b) It is used for string manipulation.
   c) It is a reserved keyword and cannot be used.
   d) It is used to format strings in Python.

10. **In Python, what is the purpose of the with statement?**

    a) It is used to declare variables.
    b) It is used for error handling.
    c) It is used for context management and resource acquisition.
    d) It is used to define conditional statements.

11. **What is the purpose of the __call__ method in a Python class?**

    a) It calls a method in the class.
    b) It is used for making a class callable like a function.
    c) It is a reserved keyword and cannot be used.
    d) It calls the constructor of the class.

12. **What is the purpose of the functools module in Python?**

    a) It provides tools for working with functions and callable objects.
    b) It is used for creating functional programming constructs.
    c) It is a module for working with mathematical functions.
    d) It is a module for working with asynchronous functions.

13. **What is the purpose of the zip() function in Python?**

    a) It compresses files into a zip archive.
    b) It creates a zip object containing pairs from multiple iterables.
    c) It is used for encrypting data.
    d) It extracts files from a zip archive.

14. **What is the role of the __iter__ and __next__ methods in Python?**

    a) They are used for iteration in a for loop.
    b) They define the behavior of the equality operator.
    c) They are used for string manipulation.
    d) They implement an iterable object's iteration protocol.

15. **What is the purpose of the pickle module in Python?**

    a) It is used for parsing XML files.
    b) It is used for serializing and deserializing Python objects.
    c) It is used for creating compressed archives.
    d) It is used for working with binary data.

16. **What is the role of the __len__ method in Python?**

    a) It returns the length of an iterable object.
    b) It is used for defining length-related operations.
    c) It returns the length of a string.
    d) It defines the behavior of the **len()** function for an object.

17. **In Python, what is a metaclass?**

    a) It is a class that inherits from multiple classes.
    b) It is a class for creating class instances.
    c) It is a class that defines the behavior of other classes.
    d) It is a class with only class methods.

18. **What is the purpose of the hash() function in Python?**

a) It is used for creating hash tables.
b) It calculates the hash value of an object.
c) It is used for secure password hashing.
d) It is used for generating random numbers.

19. **What is the purpose of the __getitem__ method in Python?**

a) It gets the item at a specified index in a list.
b) It gets the attribute of an object.
c) It gets the item at a specified key in a dictionary.
d) It gets the value at a specified index in a string.

20. **What is the significance of the Global Star (*) operator in function arguments?**

a) It indicates a variable number of arguments in a function.
b) It is used for unpacking iterables.
c) It is a wildcard for any data type.
d) It is used for exponentiation.