Zed-King
GROUP OF INSTITUTIONS
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Model Test Paper 1

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

```
python
CopyEdit
print("Hello)
```

A) Hello
B) SyntaxError
C) NameError
D) ValueError

Answer: B) SyntaxError

Unclosed string literal causes a `SyntaxError`.

2. What type of error is raised when dividing by zero in Python?

A) ValueError
B) ArithmeticError
C) ZeroDivisionError
D) TypeError

Answer: C) ZeroDivisionError

3. Which error occurs if you try to add an integer and a string like `5 + "5"`?

A) NameError
B) TypeError
C) ValueError
D) SyntaxError

Answer: B) TypeError

4. Which of the following will raise a `ValueError`?

A) `int("abc")`
B) `print(10/0)`
C) `len(42)`
D) `mylist[5]` (if list has 3 elements)

Answer: A) int("abc")

5. Which of the following is a high-level programming language?

A) Assembly
B) Python
C) Machine Code
D) Binary

Answer: B) Python

6. What type of language is directly understood by the computer's CPU?

A) Assembly language
B) High-level language
C) Machine language
D) Python

Answer: C) Machine language

7. What is the main role of a linker in program execution?

A) Translate high-level code
B) Execute code
C) Combine object files and resolve symbols
D) Compile the source code

Answer: C) Combine object files and resolve symbols

8. What is the function of a loader?

A) Edits source code
B) Loads machine code into memory
C) Compiles high-level language
D) Translates bytecode to source code

Answer: B) Loads machine code into memory

9. Which Python module is used for debugging purposes?

A) test
B) debugpy
C) pdb
D) pydoc

Answer: C) pdb

`pdb` is the built-in Python debugger.

10. What kind of error is typically caught during debugging?

A) Logical errors
B) Syntax errors
C) Compilation errors
D) Hardware errors

Answer: A) Logical errors

11. What is the purpose of documentation in software development?

A) To debug code
B) To translate code
C) To explain code functionality for users and developers
D) To compile source code

Answer: C) To explain code functionality for users and developers

12. What does a rectangle symbol in a flowchart represent?

A) Start/End
B) Input/Output
C) Process
D) Decision

Answer: C) Process

A rectangle represents a process or instruction like a calculation or assignment in Python (e.g., `x = 5 + 2`).

13. What does a diamond symbol in a flowchart represent?

A) Loop
B) Function
C) Decision/Condition
D) Input

Answer: C) Decision/Condition

Used to represent conditional logic (e.g., `if`, `elif`, `else` in Python).

14. Which flowchart symbol is used to represent input/output operations?

A) Rectangle
B) Diamond
C) Parallelogram
D) Oval

Answer: C) Parallelogram

For example, Python's `input()` and `print()` correspond to this.

15. What type of Python structure is commonly used to represent a loop in a flowchart?

A) Function
B) Condition
C) Recursion
D) `while` or `for` loop

Answer: D) `while` or `for` loop

16. Which Python keyword corresponds to a decision symbol (diamond) in a flowchart?

A) `for`
B) `def`
C) `if`
D) `print`

Answer: C) `if`

17. In a flowchart, what does an oval represent?

A) Loop
B) Input/Output
C) Start/End
D) Condition

Answer: C) Start/End

18. What does the following flowchart logic describe in Python?

- Start
- Input number
- Check if number % 2 == 0
    - If True: print "Even"

- Else: print "Odd"

A) Prime number checker
B) Odd/Even checker
C) Range validator
D) Factorial calculator

Answer: B) Odd/Even checker

19. Which of the following can not be represented by a simple flowchart?

A) If-else logic
B) Looping constructs
C) Recursion
D) Input/output

Answer: C) Recursion

Flowcharts are not ideal for visualizing recursion as it can be complex and repetitive.

20. Which of the following is true about flowcharts in programming?

A) Flowcharts are used only in low-level programming.
B) Flowcharts are rarely used with Python.
C) Flowcharts help plan the logic before coding.
D) Python automatically generates flowcharts.

Answer: C) Flowcharts help plan the logic before coding

21. Who developed Python programming language?

A) Dennis Ritchie
B) Guido van Rossum
C) James Gosling
D) Bjarne Stroustrup

Answer: B) Guido van Rossum

Python was created by Guido van Rossum and released in 1991.

22. What is the correct file extension for Python files?

A) `.pt`
B) `.py`
C) `.pyt`
D) `.python`

Answer: B) .py

Python scripts are saved with the `.py` extension.

23. In which year was Python first released?

A) 1989
B) 1991
C) 1995
D) 2000

Answer: B) 1991

Python 1.0 was officially released in February 1991.

24. What type of programming language is Python?

A) Low-level
B) High-level
C) Assembly
D) Machine language

Answer: B) High-level

Python is designed to be easy to read and write, abstracting low-level details.

25. Which of the following is used to display output in Python?

A) output()
B) echo()
C) print()
D) display()

Answer: C) print()

The `print()` function is used to output text or variables.

26. What will be the output of this code?

```
python
CopyEdit
print(type(5.0))
```

A) `<class 'float'>`
B) `<type 'float'>`
C) `float`
D) `5.0`

Answer: A) <class 'float'>

27. Which of the following is a comment in Python?

A) `// This is a comment`
B) `# This is a comment`
C) `<!-- comment -->`
D) `/* comment */`

Answer: B) # This is a comment

Python uses `#` for single-line comments.

28. What is the output of this code?

```
python
CopyEdit
x = 5
y = "5"
print(x + int(y))
```

A) 55
B) 10
C) 5
D) Error

Answer: B) 10

`int(y)` converts the string `"5"` to an integer.

29. Which of the following is a Python keyword?

A) var
B) define
C) def
D) function

Answer: C) def

`def` is used to define a function.

30. What is Python mainly used for?

A) Game development only
B) Web development only

C) Data science, web dev, automation, etc.
D) Only operating system development

Answer: C) Data science, web dev, automation, etc.

31. What will be the output of this code?

```
python
CopyEdit
print(2 + 3 * 5)
```

A) 25
B) 17
C) 15
D) 30

Answer: B) 17

Multiplication has higher precedence than addition, so: `3 * 5 = 15`, then `2 + 15 = 17`.

32. Which of the following is the modulus operator in Python?

A) `/`
B) `//`
C) `%`
D) `**`

Answer: C) %

`%` returns the remainder of a division.

33. What will be the result of `10 // 3` in Python?

A) 3.33
B) 3.0
C) 3
D) 4

Answer: C) 3

`//` is floor division, it returns the integer part of the division.

34. What does the `**` operator do in Python?

A) Multiplication
B) Modulus

C) Exponentiation
D) Bitwise AND

Answer: C) Exponentiation

`2 ** 3` means 2 raised to the power 3 = 8.

35. Which of the following is an example of a compound assignment operator?

A) `==`
B) `=`
C) `+=`
D) `+`

Answer: C) +=

Compound operators combine arithmetic and assignment (e.g., `x += 1`).

36. What will be the output of this code?

```
python
CopyEdit
x = 10
y = 4
print(x & y)
```

A) 14
B) 0
C) 2
D) 6

Answer: C) 0

`10 = 1010`, `4 = 0100` → bitwise AND is `0000` → 0.

37. Which of the following is NOT a logical operator in Python?

A) `and`
B) `or`
C) `not`
D) `&`

Answer: D) &

`&` is a **bitwise** operator, not a logical one.

38. Which of the following is a valid Python statement?

A) `print "Hello"`
B) `echo("Hello")`
C) `print("Hello")`
D) `say("Hello")`

Answer: C) print("Hello")

39. What is the result of this expression: `not(True and False)`?

A) True
B) False
C) Error
D) 0

Answer: A) True

`True and False` is `False`, so `not False` is `True`.

40. Which of the following is a Python expression, not a statement?

A) `x = 10`
B) `print("Hi")`
C) `5 + 4`
D) `if x > 5:`

Answer: C) 5 + 4

An expression produces a value; a statement performs an action.

41. Which of the following is a sequence data type in Python?

A) dict
B) list
C) set
D) None

Answer: B) list

Sequence types include `list`, `tuple`, `range`, and `str`.

42. What is the output of the following code?

```
python
CopyEdit
a = [1, 2, 3]
```

```
print(a[1])
```

A) 1
B) 2
C) [2]
D) Error

Answer: B) 2

Indexing starts at 0, so `a[1]` gives the second element.

43. What is the result of the expression `"Python"[::-1]`?

A) "Python"
B) "nohtyP"
C) Error
D) "Pyt"

Answer: B) "nohtyP"

The slice `[::-1]` reverses the string.

44. Which of the following is immutable?

A) list
B) tuple
C) dict
D) set

Answer: B) tuple

Tuples cannot be changed after creation.

45. Which function is used to find the number of elements in a sequence?

A) count()
B) index()
C) len()
D) size()

Answer: C) len()

46. What will be the output of this code?

```
python
CopyEdit
```

```
a = [1, 2, 3]
a.append(4)
print(a)
```

A) [1, 2, 3]
B) [4, 1, 2, 3]
C) [1, 2, 3, 4]
D) [1, 2, 3], 4

Answer: C) [1, 2, 3, 4]

47. What does the following return?

```
python
CopyEdit
(1, 2) + (3, 4)
```

A) (1, 2, 3, 4)
B) [1, 2, 3, 4]
C) Error
D) (4, 5)

Answer: A) (1, 2, 3, 4)

Tuples can be concatenated using `+`.

48. Which of the following is used to create a sequence of numbers?

A) enumerate()
B) map()
C) range()
D) slice()

Answer: C) range()

`range()` is commonly used in loops and returns a sequence object.

49. Which method is used to find the index of an element in a list?

A) find()
B) index()
C) search()
D) locate()

Answer: B) index()

50. What happens if you try to change a string like this?

```
python
CopyEdit
s = "hello"
s[0] = "H"
```

A) "Hello"
B) "hello"
C) Error
D) "H"

Answer: C) Error

Strings are immutable; you can't change characters by index.

51. What is the correct way to define a function in Python?

A) `function myfunc():`
B) `def myfunc:`
C) `def myfunc():`
D) `func myfunc():`

Answer: C) def myfunc():

52. What is the output of the following code?

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

print(add(2, 3))
```

A) 23
B) 5
C) 2 + 3
D) Error

Answer: B) 5

53. What is the default return value of a function that does not explicitly return anything?

A) 0
B) null
C) `None`
D) False

Answer: C) None

54. Which keyword is used to exit a function and pass back a value?

A) break
B) exit
C) stop
D) return

Answer: D) return

55. What will this function return?

```
python
CopyEdit
def greet():
    print("Hello")

x = greet()
print(x)
```

A) Hello None
B) Hello
C) None
D) Error

Answer: A) Hello None

56. What is recursion in Python?

A) Looping through a list
B) When a function calls another function
C) When a function calls itself
D) Using multiple functions

Answer: C) When a function calls itself

57. What is the output?

```
python
CopyEdit
def test(a, b=2):
    return a * b

print(test(3))
```

A) 6
B) 3

C) Error
D) 5

Answer: A) 6

58. Which of the following is a built-in function in Python?

A) add()
B) print()
C) increment()
D) plus()

Answer: B) print()

59. How do you call a function in Python named `hello`?

A) `call hello()`
B) `run hello()`
C) `hello()`
D) `exec hello()`

Answer: C) hello()

60. What does this function do?

```
python
CopyEdit
def square(x):
    return x * x
```

A) Squares a number
B) Multiplies x by 2
C) Returns 2x
D) Prints x^2

Answer: A) Squares a number

61. What are args used for in a function?

A) Accept optional keyword arguments
B) Accept a fixed number of arguments
C) Accept any number of positional arguments
D) Accept string arguments only

Answer: C) Accept any number of positional arguments

62. What are kwargs used for in a function?

A) Accept string arguments
B) Accept positional arguments
C) Accept multiple return values
D) Accept any number of keyword arguments

Answer: D) Accept any number of keyword arguments

63. Which of the following is NOT a valid function name in Python?

A) `my_function`
B) `_function1`
C) `2function`
D) `func_2`

Answer: C) 2function

Function names cannot start with a digit.

64. What is the scope of a variable declared inside a function?

A) Global
B) Local
C) Static
D) Public

Answer: B) Local

65. What is the output of this recursive function?

```
python
CopyEdit
def fact(n):
    if n == 1:
        return 1
    return n * fact(n-1)

print(fact(4))
```

A) 24
B) 12
C) 4
D) 10

Answer: A) 24

66. What type of function returns a value based on parameters passed to it?

A) Built-in
B) Lambda
C) Value-returning function
D) Void function

Answer: C) Value-returning function

67. What is the output?

```
python
CopyEdit
def f():
    return

print(f())
```

A) Error
B) 0
C) None
D) Null

Answer: C) None

68. Which of the following is a valid lambda function?

A) `lambda x, y: x + y`
B) `def lambda(x, y): x + y`
C) `lambda x: return x`
D) `x = lambda x: x +`

Answer: A) lambda x, y: x + y

69. What is the purpose of the `global` keyword?

A) To define a new global function
B) To access a global variable inside a function
C) To create local variables
D) To return from a function

Answer: B) To access a global variable inside a function

70. Which statement is used to document a function's purpose?

A) `# Comment`
B) `/* doc */`

C) `"""docstring"""`
D) `describe()`

Answer: C) `"""docstring"""`

71. Which function is used to open a file in Python?

A) `readfile()`
B) `openfile()`
C) `open()`
D) `file()`

Answer: C) open()

`open()` is the built-in function to open a file.

72. What does the mode `'r'` mean in file handling?

A) Write
B) Read
C) Append
D) Remove

Answer: B) Read

`'r'` opens a file for reading (default mode).

73. Which mode is used to write to a file and truncate it if it exists?

A) `'a'`
B) `'w'`
C) `'x'`
D) `'rw'`

Answer: B) 'w'

`'w'` overwrites the file if it exists.

74. What is the purpose of the `'a'` mode in Python file handling?

A) Append data to a file
B) Add new file
C) Archive file
D) Access attributes

Answer: A) Append data to a file

75. Which function is used to read the entire contents of a file as a string?

A) `readfile()`
B) `readline()`
C) `read()`
D) `readlines()`

Answer: C) read()

76. What does `readlines()` return?

A) A list of all lines in the file
B) A single line as string
C) The number of lines
D) A generator object

Answer: A) A list of all lines in the file

77. What happens if you call `read()` on a file that is already read to the end?

A) Raises an error
B) Returns None
C) Returns empty string
D) Starts over

Answer: C) Returns empty string

78. What will happen if you try to write to a file opened in `'r'` mode?

A) Writes successfully
B) Appends at end
C) File is deleted
D) Raises an error

Answer: D) Raises an error

79. Which method is used to close a file in Python?

A) `closefile()`
B) `exit()`
C) `file.close()`
D) `close()`

Answer: D) close()

80. What is the correct syntax for using a file with `with` statement?

A) `with file.open() as f:`
B) `with open('file.txt'):`
C) `with open('file.txt', 'r') as f:`
D) `file = open('file.txt') with as f:`

Answer: C) with open('file.txt', 'r') as f:

Ensures the file is automatically closed.

81.What is the scope of a variable defined inside a function?

A) Global
B) Local
C) Enclosed
D) Built-in

Answer: B) Local

Variables declared inside a function are accessible only within that function.

82. Which keyword is used to access global variables inside a function?

A) access
B) global
C) scope
D) def

Answer: B) global

83. What will be the output of this code?

```
python
CopyEdit
x = 10
def show():
    x = 5
    print(x)

show()
print(x)
```

A) 5 10
B) 10 5
C) 5 5
D) 10 10

Answer: A) 5 10

`x = 5` is local to `show()`. The global `x` remains 10.

84. What is LEGB rule in Python?

A) Loop, Exception, Global, Block
B) Local, Enclosed, Global, Built-in
C) Lambda, Enclosed, Global, Block
D) Local, Environment, Global, Binary

Answer: B) Local, Enclosed, Global, Built-in

It defines the order in which namespaces are searched.

85. What type of scope does a variable declared in a nested function use?

A) Global
B) Built-in
C) Enclosed
D) None

Answer: C) Enclosed

It refers to the enclosing function's scope.

86. Which statement is true about Python variable scope?

A) Python doesn't have local scope
B) All variables are global by default
C) Local scope variables override global ones inside functions
D) You can access local variables globally

Answer: C) Local scope variables override global ones inside functions

87. What is a module in Python?

A) A loop
B) A data structure
C) A file containing Python code
D) A reserved word

Answer: C) A file containing Python code

88. How do you import a specific function from a module?

A) `import math.sqrt`
B) `include sqrt from math`
C) `from math import sqrt`
D) `from math.sqrt import *`

Answer: C) from math import sqrt

89. What will `import math` allow you to do?

A) Use math operators like +, -
B) Use functions like `math.sqrt()`
C) Create variables
D) Access pandas features

Answer: B) Use functions like math.sqrt()

90. What is the purpose of `__name__ == "__main__"` in Python modules?

A) It defines a module's name
B) It prevents import errors
C) It checks if the module is being run directly
D) It initializes the module

Answer: C) It checks if the module is being run directly

91. What is NumPy in Python?

A) A numerical graphics tool
B) A compiler
C) A library for numerical computations
D) A data visualization tool

Answer: C) A library for numerical computations

92. What is the main object in NumPy?

A) ndarray
B) dataframe
C) series
D) matrix

Answer: A) ndarray

NumPy uses the `ndarray` object for multidimensional arrays.

93. How do you import the NumPy library in Python?

A) `import numpy`
B) `import NumPy as np`
C) `import numpy as np`
D) `load numpy`

Answer: C) import numpy as np

94. What function is used to create an array in NumPy?

A) `array()`
B) `makearray()`
C) `create_array()`
D) `buildarray()`

Answer: A) array()

95. What does `np.zeros((2, 3))` return?

A) A 2x3 array filled with 1s
B) A 3x2 array filled with 0s
C) A 2x3 array filled with 0s
D) A 1D array with 5 zeros

Answer: C) A 2x3 array filled with 0s

96. What is the shape of this array?

```
python
CopyEdit
np.array([[1, 2, 3], [4, 5, 6]])
```

A) (2,)
B) (3, 2)
C) (2, 3)
D) (6,)

Answer: C) (2, 3)

97. Which function creates a sequence of numbers in NumPy?

A) `np.arange()`
B) `np.range()`
C) `np.linspace()`
D) `np.random()`

Answer: A) np.arange()

98. What is the output of `np.arange(2, 10, 2)`?

A) [2, 3, 4, 5, 6, 7, 8, 9]
B) [2, 4, 6, 8]
C) [2, 10, 2]
D) [3, 5, 7, 9]

Answer: B) [2, 4, 6, 8]

99. How do you find the shape of an array `a`?

A) `shape(a)`
B) `a.shape()`
C) `a.shape`
D) `get_shape(a)`

Answer: C) a.shape

100.What does `np.ones((3,))` return?

A) [1, 1, 1]
B) [[1, 1, 1]]
C) A 3x3 matrix of 1s
D) Error

Answer: A) [1, 1, 1]