PROGRAMMING
IN
PYTHON
UNIT-1&2
SOVED BY:
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-:- 1 marker (unit:-1&2)

1. Who developed Python?

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

Answer: C) Guido van Rossum

2. In which year was Python first released?

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

Answer: B) 1991

3. What type of programming language is Python?

A) Compiled
B) Interpreted
C) Machine-level
D) Assembly

Answer: B) Interpreted

4. Which of the following is not a feature of Python?

A) Dynamically Typed
B) Object-Oriented
C) Platform Dependent
D) Open Source

Answer: C) Platform Dependent

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

A) 2var
B) my_variable
C) @name
D) if

Answer: B) my_variable

6. How do you check the Python version installed on your system?

A) python --check
B) python3 --ver
C) python --version
D) check python

Answer: C) python --version

7. What is the file extension of Python files?

A) .pyt
B) .pyth
C) .python
D) .py

Answer: D) .py

8. Which of the following is an immutable data type?

A) List
B) Dictionary
C) Tuple
D) Set

Answer: C) Tuple

9. What will be the output of print(type(10)) in Python?

A) <class 'float'>
B) <class 'int'>
C) <class 'str'>
D) <class 'complex'>

Answer: B) <class 'int'>

10. Which of the following operators is used for exponentiation in Python?

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

Answer: B) **

11. What is the output of bool([]) in Python?

A) True
B) False
C) None
D) Error

Answer: B) False

12. What is the correct syntax to create a dictionary in Python?

A) {1, 2, 3}
B) { "name": "Alice", "age": 25 }
C) ["name", "Alice", "age", 25]
D) ("name", "Alice", "age", 25)

Answer: B) { "name": "Alice", "age": 25 }

UNIT 2: Control Structures in Python

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

```
x = 5
if x > 3:
    print("Hello")
```

A) No output
B) Hello
C) Error
D) 5

Answer: B) Hello

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

```
if 0:
    print("Yes")
else:
    print("No")
```

A) Yes
B) No
C) Error
D) None

Answer: B) No

15. What is the syntax for an if statement in Python?

A) if (condition):
B) if condition:
C) if {condition}:
D) if [condition]:

Answer: B) if condition:

16. What is the syntax for a for loop in Python?

A) for x in range(10)
B) for x in range(10):
C) for (x=0; x<10; x++)
D) foreach x in range(10):

Answer: B) for x in range(10):

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

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

A) 1 2 3
B) 0 1 2
C) 0 1 2 3
D) 1 2

Answer: B) 0 1 2

18. Which statement is used to exit a loop prematurely?

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

Answer: C) break

19. What is the difference between break and continue statements?

A) break stops the loop, continue skips an iteration
B) break skips an iteration, continue stops the loop
C) Both are the same
D) None of the above

Answer: A) break stops the loop, continue skips an iteration

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

```
i = 1
while i < 4:
    print(i)
    i += 1
```

A) 1 2 3
B) 1 2 3 4
C) Infinite loop
D) Error

Answer: A) 1 2 3

21. Which keyword is used for an infinite loop in Python?

A) while True:

B) while 1:
C) Both A & B
D) None of the above

Answer: C) Both A & B

22. What is the output of the following code?

```
for i in range(2, 10, 2):
    print(i, end=" ")
```

A) 2 4 6 8
B) 2 4 6 8 10
C) 2 3 4 5 6 7 8 9
D) 0 2 4 6 8

Answer: A) 2 4 6 8

23. Which of the following is a valid Python identifier?

A) 1variable
B) my_variable
C) @name
D) if

Answer: B) my_variable

24. How many keywords are there in Python 3.7?

A) 31
B) 32
C) 33
D) 34

Answer: C) 33

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

print(type(10))

A) <class 'int'>
B) <class 'float'>
C) <class 'str'>
D) <class 'complex'>

Answer: A) <class 'int'>

26. Which of the following data types is immutable?

A) List
B) Dictionary
C) Tuple
D) Set

Answer: C) Tuple

28. What is the correct syntax to create a dictionary in Python?

A) {1, 2, 3}
B) { "name": "Alice", "age": 25 }
C) ["name", "Alice", "age", 25]
D) ("name", "Alice", "age", 25)

Answer: B) { "name": "Alice", "age": 25 }

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

print(2 ** 3)

A) 6
B) 8
C) 9
D) 12

Answer: B) 8

30. Which operator is used for floor division in Python?

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

Answer: B) //

31. Which of the following is NOT a valid variable name in Python?

A) _variable
B) 2var
C) myVar
D) var_2

Answer: B) 2var

32. What will bool([]) return in Python?

A) True
B) False
C) None
D) Error

Answer: B) False

33. What is the output of the following code?

```
list1 = [1, 2, 3]
list2 = list1
list1.append(4)
print(list2)
```

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

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

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

```
x = 5
if x > 3:
    print("Hello")
```

A) No output
B) Hello
C) Error
D) 5

Answer: B) Hello

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

```
if 0:
    print("Yes")
else:
    print("No")
```

A) Yes
B) No
C) Error
D) None

Answer: B) No

36. What is the output of the following code?

```
x = 10
y = 5
if x > y and y < 10:
    print("True")
else:
    print("False")
```

A) True
B) False
C) Error
D) None

Answer: A) True

37. What is the syntax for a for loop in Python?

A) for x in range(10)
B) for x in range(10):
C) for (x=0; x<10; x++)
D) foreach x in range(10):

Answer: B) for x in range(10):

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

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

A) 1 2 3
B) 0 1 2
C) 0 1 2 3
D) 1 2

Answer: B) 0 1 2

39. Which statement is used to exit a loop prematurely?

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

Answer: C) break

40. What is the difference between break and continue statements?

A) break stops the loop, continue skips an iteration
B) break skips an iteration, continue stops the loop
C) Both are the same
D) None of the above

Answer: A) break stops the loop, continue skips an iteration

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

```
i = 1
while i < 4:
    print(i)
    i += 1
```

A) 1 2 3
B) 1 2 3 4
C) Infinite loop
D) Error

Answer: A) 1 2 3

42. Which keyword is used for an infinite loop in Python?

A) while True:
B) while 1:
C) Both A & B
D) None of the above

Answer: C) Both A & B

43. What is the output of the following code?

```
for i in range(2, 10, 2):
    print(i, end=" ")
```

A) 2 4 6 8
B) 2 4 6 8 10
C) 2 3 4 5 6 7 8 9
D) 0 2 4 6 8

Answer: A) 2 4 6 8

-:- Question answers.

UNIT 1: Python Basics

1. What are Python Keywords?

Answer:
Python keywords are reserved words that cannot be used as variable names, function names, or any other identifiers. These words define the syntax and structure of Python. Examples include if, else, while, return, True, False, and None.

2. What are Python Identifiers?

Answer:
An identifier is the name used for variables, functions, classes, etc., in Python. Rules for identifiers:

Can contain letters (a-z, A-Z), digits (0-9), and underscores (_).

Cannot start with a digit.

Cannot use Python keywords as identifiers.

Special characters like @, #, $ are not allowed.

3. What are Python Data Types?

Answer:
Python has different built-in data types:

Scalar Types: int, float, complex, bool

Sequence Types: str, list, tuple

Mapping Type: dict

Set Types: set, frozenset

4. What is the difference between a List and a Tuple?

Answer:

List: Mutable (can be changed), defined using [].

Tuple: Immutable (cannot be changed), defined using ().

5. What is a Dictionary in Python?

Answer:
A dictionary is a collection of key-value pairs, defined using {}. Example:

student = {"name": "Alice", "age": 21, "course": "Python"}

6. What are Python Operators?

Answer:
Python has several types of operators:

Arithmetic: +, -, *, /, //, %, **

Comparison: ==, !=, >, <, >=, <=

Logical: and, or, not

Assignment: =, +=, -=, *=, /=

Identity: is, is not

Membership: in, not in

7. Who developed Python and when was it first released?

Answer: Python was developed by Guido van Rossum in the late 1980s and was officially released in 1991.

8. What are the key features of Python?

Answer: Python has several key features:

Easy to Learn and Use – Simple syntax, readable code.

Interpreted Language – No need for compilation; executes line by line.

Cross-Platform – Runs on Windows, macOS, and Linux.

Object-Oriented & Procedural – Supports multiple programming paradigms.

Dynamically Typed – No need to declare variable types.

Extensive Library Support – Comes with built-in modules.

Open Source & Large Community – Free to use with strong community support.

9. How to check if Python is installed on your system?

Answer: Open Command Prompt (Windows) or Terminal (macOS/Linux) and type:

python --version

or

python3 --version

This will display the installed Python version.

10. How to install Python on Windows?

Answer:

1. Download Python from the official website: https://www.python.org/downloads/

2. Run the downloaded .exe file.

3. Select "Add Python to PATH" and click "Install Now".

4. Verify installation using python --version in Command Prompt.

11. What is the use of the PATH variable in Python?

Answer: The PATH variable stores the directory location of executable files. It allows users to run Python from anywhere in the command line without specifying the full path.

UNIT 2: BASICS OF PYTHON PROGRAMMING

12. What is indentation in Python? Why is it important?

Answer:

Indentation refers to the whitespace (spaces or tabs) used to define code blocks.

Unlike other languages that use {}, Python relies on consistent indentation.

Example:

```
if True:
    print("Hello")  # Indented correctly
```

Incorrect indentation leads to an IndentationError.

13. What are comments in Python? How are they used?

Answer: Comments are used to make code more readable and explain the logic.

Single-line comment → # This is a comment

Multi-line comment →

'''
This is a
multi-line comment
'''

14. What are Python keywords? Give examples.

Answer:
Keywords are reserved words that cannot be used as identifiers. Examples:

Control Flow: if, else, elif, while, for, break, continue

Function/Class Definition: def, return, class

Exception Handling: try, except, raise, finally

Boolean Values: True, False, None

Logical Operators: and, or, not

15. What are variables in Python? How to declare them?

Answer:

Variables store data in memory.

No need to declare types (dynamically typed).

Rules:

Must start with a letter or _ (underscore).

Cannot start with a number.

Case-sensitive (var and Var are different).

Example:

```
x = 10
name = "Alice"
_value = 5.5
```

16. What are Python data types?

Answer:
Python has different built-in data types:

1. Scalar Types → int, float, complex, bool

2. Sequence Types → str, list, tuple

3. Mapping Type → dict

4. Set Types → set, frozenset

17. What is the difference between a List and a Tuple?
Difference between List and Tuple in Python

1. Mutability:

List: Mutable (can be modified after creation).

Tuple: Immutable (cannot be modified after creation).

2. Syntax:

List: Defined using square brackets [].

Tuple: Defined using parentheses ().

3. Performance:

List: Slower due to dynamic resizing and modification.

Tuple: Faster because it is fixed in size.

4. Memory Usage:

List: Consumes more memory due to dynamic allocation.

Tuple: Uses less memory as it is immutable.

5. Operations Allowed:

List: Can be modified (add, remove, update elements).

Tuple: Cannot be modified after creation.

6. Iteration Speed:

List: Slower due to mutability.

Tuple: Faster as elements are fixed.

7. Use Case:

List: Suitable for data that needs to change frequently.

Tuple: Ideal for fixed data that should not be altered.

Example:

List (Mutable)

```
my_list = [1, 2, 3]
my_list.append(4)  # Allowed
print(my_list)  # Output: [1, 2
```

18. What are Python operators?

Answer: Operators perform operations on variables and values.

1. Arithmetic Operators: +, -, *, /, //, %, **

2. Assignment Operators: =, +=, -=, *=, /=

3. Comparison Operators: ==, !=, >, <, >=, <=

4. Logical Operators: and, or, not

5. Identity Operators: is, is not

6. Membership Operators: in, not in

7. Bitwise Operators: &, |, ^, ~, <<, >>

19. What is the difference between is and == operators?

Answer:

== → Compares values (Checks if values are equal).

is → Compares memory location (Checks if both variables refer to the same object).

Example:

```
a = [1, 2, 3]
b = a
c = [1, 2, 3]

print(a == c)  # True (values are same)
print(a is c)  # False (different memory locations)
print(a is b)  # True (same memory location)
```

20. What are conditional statements in Python?

Answer:
Conditional statements control program flow based on conditions.

1. if Statement

```
if x > 0:
    print("Positive")
```

2. if-else Statement

```
if x > 0:
    print("Positive")
else:
    print("Negative")
```

3. if-elif-else Statement

```
if x > 0:
    print("Positive")
elif x == 0:
    print("Zero")
else:
    print("Negative")
```

21. What are loops in Python?

Answer:
Loops are used to execute a block of code multiple times.

1. for loop → Iterates over sequences like lists, tuples, or strings.

```
for i in range(5):
    print(i)  # Outputs 0,1,2,3,4
```

2. while loop → Repeats as long as the condition is True.

```
x = 5
while x > 0:
    print(x)
    x -= 1
```

22. What is the difference between break and continue?

Example:

```
for i in range(5):
    if i == 3:
        break  # Loop stops at 3
    print(i)

for i in range(5):
    if i == 3:
        continue  # Skips 3 and continues
    print(i)
```

23. What are Conditional Statements in Python?

Answer:

Conditional statements control the flow of execution based on conditions. The main statements are:

if statement: Executes code only if the condition is true.

if-else statement: Executes different blocks based on condition.

if-elif-else statement: Used for multiple conditions.

Nested if: An if inside another if.

24. What is the syntax of an if statement?

Answer:

```
if condition:
    statement
```

Example:

```
num = 10
if num > 0:
    print("Positive number")
```

25. What is the purpose of the elif statement?

Answer:
The elif statement allows multiple conditions to be checked in a single block.
Example:

```
num = 0
if num > 0:
    print("Positive")
elif num == 0:
    print("Zero")
else:
    print("Negative")
```

26. What are Loops in Python?

Answer:
Loops are used to execute a block of code multiple times. Python has:

for loop: Iterates over a sequence (list, tuple, string, etc.).

while loop: Repeats as long as a condition is true.

27. What is the syntax of a for loop?

Answer:

```
for val in sequence:
    # statement(s)
```

Example:

```
for i in range(5):
    print(i)
```

28. What is the syntax of a while loop?

Answer:

```
while condition:
    # statement(s)
```

Example:

```
x = 5
while x > 0:
    print(x)
    x -= 1
```

29. What is the break statement?

Answer:
The break statement stops a loop immediately.

Example:

```
for i in range(10):
    if i == 5:
        break
    print(i)
```

30. What is the continue statement?

Answer:
The continue statement skips the current iteration and moves to the next.
Example:

```
for i in range(5):
    if i == 2:
        continue
    print(i)
```

31. How can you check if a number is even or odd using an if statement?

Answer:

```
num = int(input("Enter a number: "))
if num % 2 == 0:
    print("Even")
else:
    print("Odd")
```

32. How to check if a number is prime?

Answer:

```
num = int(input("Enter a number: "))
if num > 1:
    for i in range(2, num):
        if num % i == 0:
            print("Not a prime number")
            break
    else:
        print("Prime number")
```

```
else:
    print("Not a prime number")
```

33. Write a Python program to print the Fibonacci series.

Answer:

```
n = int(input("Enter the number of terms: "))
a, b = 0, 1
for _ in range(n):
    print(a, end=" ")
    a, b = b, a + b
```

34. How to check if a string is a palindrome?

Answer:

```
s = input("Enter a string: ")
if s == s[::-1]:
    print("Palindrome")
else:
    print("Not a palindrome")
```

35. How to convert a decimal number to binary in Python?

Answer:

```
num = int(input("Enter a decimal number: "))
print(bin(num)[2:])
```

36. How to find the maximum element in a nested list?

Answer:

```
m = [[11, 2], [3, 341, 5], [53]]
max_num = max(max(sublist) for sublist in m)
print("Maximum number:", max_num)
```

These questions cover the important topics from both units. Let me know if you need explanations for any of them!