Python Programming Unit 2 Notes and MCQs

1. Python Operators

Operators in Python

- Operators perform operations on variables and values.
- Types of operators:
  - Arithmetic
  - Assignment
  - Comparison
  - Logical
  - Bitwise
  - Identity
  - Membership

Arithmetic Operators

- Used for mathematical calculations.
- Example:
  - + (Addition) → 10 + 3 = 13
  - - (Subtraction) → 10 - 3 = 7
  - * (Multiplication) → 10 * 3 = 30
  - / (Division) → 10 / 3 = 3.33
  - // (Floor Division) → 10 // 3 = 3
  - % (Modulus) → 10 % 3 = 1
  - ** (Exponentiation) → 10 ** 3 = 1000

Assignment Operators

- Used to assign values to variables.
- Example:
    - = (Assign) → C = A + B
    - += (Add and assign) → A += B
    - -= (Subtract and assign) → A -= B

Comparison Operators

- Used for comparing values.
- Example:
    - > (Greater than) → A > B
    - < (Less than) → A < B
    - == (Equal to) → A == B

Logical Operators

- Used for logical conditions.
- Example:
    - and → True if both conditions are True
    - or → True if one condition is True
    - not → Reverses the result

Bitwise Operators

- Operate on binary numbers.
- Example:
    - & (AND)
    - | (OR)
    - ~ (NOT)

Identity and Membership Operators

- is and is not for object identity.
- in and not in for checking membership.

2. Conditional and Looping Statements

If Statements

- if → Executes if the condition is True.
- if-else → Executes one block if True, another if False.
- elif → Multiple conditions.

Loops in Python

- **For loop** → Iterates over a sequence.
- **While loop** → Runs as long as the condition is True.
- **Break, Continue, Pass**:
    - break → Stops loop execution.
    - continue → Skips current iteration.
    - pass → Placeholder for future code.

3. Functions in Python

- Defined using def keyword.
- Types of functions:
    - Built-in functions (e.g., print(), len())
    - User-defined functions
- Arguments:
    - Positional, Keyword, Default, Variable-length

4. MCQs

Q11. Which keyword is used to define a function in Python?

- a) func
- b) def
- c) define
- d) function

Answer: b) def

Q12. What is the output of bool(0)?

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

Answer: b) False

Q13. What will print("Hello" * 3) output?

- a) HelloHelloHello
- b) Error
- c) Hello 3 times
- d) None

Answer: a) HelloHelloHello

Q14. What is the correct way to open a file in Python for reading?

- a) open('file.txt', 'r')
- b) open('file.txt', 'w')
- c) open('file.txt', 'rb')
- d) open('file.txt', 'wb')

Answer: a) open('file.txt', 'r')

Q15. What does continue do in a loop?

- a) Stops the loop execution
- b) Skips the current iteration
- c) Exits the program
- d) Jumps to another function

Answer: b) Skips the current iteration

Q16. What will be the output of print(type([]))?

- a) list
- b) tuple
- c) dict
- d) set

Answer: a) list

Q17. What is the result of 3 ** 2?

- a) 6
- b) 9
- c) 3
- d) 8

Answer: b) 9

Q18. Which of the following is NOT a valid Python data type?

- a) List
- b) Dictionary
- c) Enumeration
- d) Tuple

Answer: c) Enumeration

Q19. How do you start a single-line comment in Python?

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

Answer: c) #

Q20. What function is used to take input from the user in Python?

- a) read()
- b) input()
- c) scan()
- d) enter()

Answer: b) input()