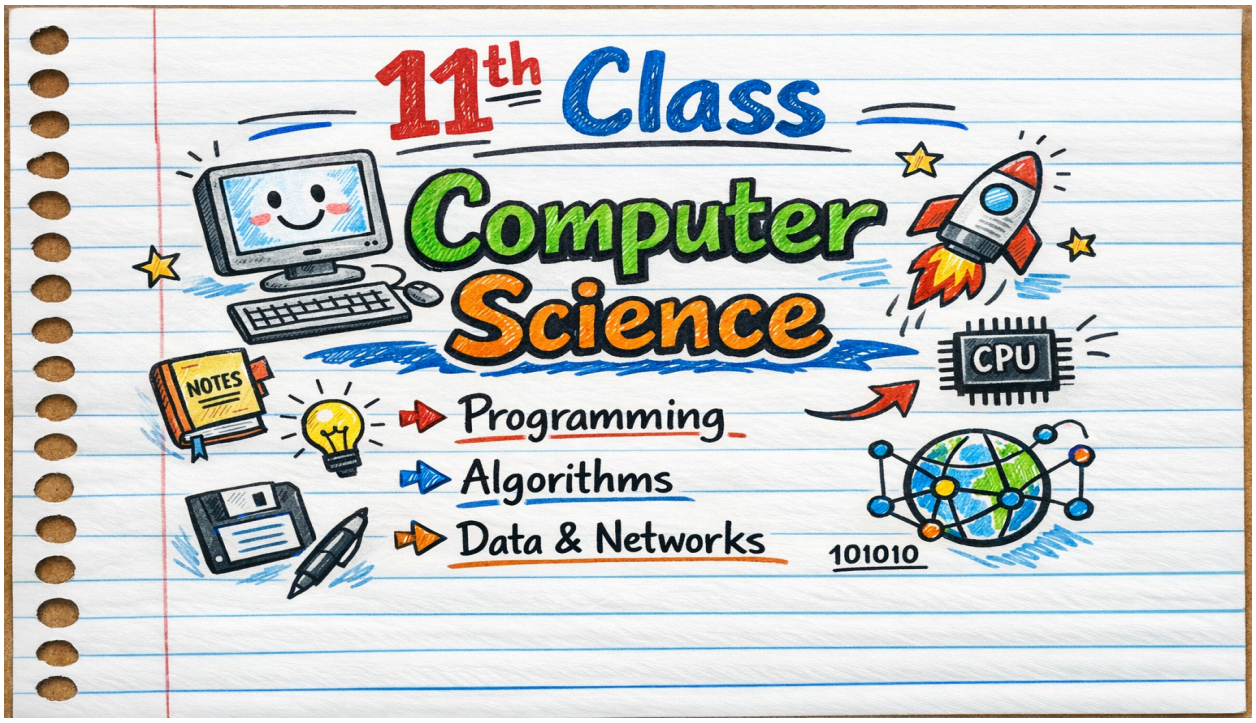

Class: 11th

Subject: Computer Science

Unit 2: Python Programming

❖ Important MCQs:

1. Why is Python considered a versatile programming language?

(a) It only works on one platform

(b) It can be used in multiple domains like AI, web, and data analysis ✅

(c) It is only used for games

(d) It does not support libraries

2. What is the main advantage of Python's simple syntax?

(a) It increases hardware speed

(b) It reduces the need for computers

(c) It allows focus on logic instead of complex syntax ✅

(d) It eliminates errors completely

3. Which sequence correctly represents the programming process?

(a) Execute → Write Code → Output → Compile

(b) Write Code → Compile/Interpret → Execute → Output ✅

(c) Output → Execute → Write Code → Compile

(d) Compile → Output → Execute → Write Code

4. What is the key difference between compiling and interpreting?

(a) Compile deletes code, interpret saves it

(b) Compile converts entire code, interpret translates step-by-step ✅

(c) Both are exactly the same

(d) Interpret is faster than compile in all cases

5. Which step ensures that the program actually performs its intended task?

(a) Write Code

(b) Compile/Interpret

(c) Execute ✅

(d) Output

6. Why is a development environment important in Python programming?

(a) It increases internet speed

(b) It helps in writing, running, and debugging code efficiently ✅

(c) It replaces programming languages

(d) It is only used for games

7. What would happen if code is written but not compiled/interpreted?

a) It will run automatically

(b) The computer will not understand the instructions ✅

(c) Output will be generated

(d) It will convert into hardware

8. Which of the following best describes "Output" in a program?

a) The instructions written by the programmer

(b) The translation of code

(c) The final result after execution of instructions ✅

(d) The error in the program

9. Why is choosing a good IDE important for beginners?

a) It makes the computer faster

(b) It simplifies coding, debugging, and project management ✅

(c) It replaces the need for programming knowledge

(d) It only helps in gaming

10. Which statement best explains computer programming?

a) It is only about writing code

(b) It is a process of designing, translating, executing, and producing results ✅

(c) It is only about installing software

(d) It is limited to one programming language

11. What is the output of the following Python statement?

print("This is my first page")

a) Error

(b) This is my first page ✅

(c) "This is my first page"

(d) Nothing

12. What is the main purpose of the print() function in Python?

a) To take input from user

(b) To store data

(c) To display output on the screen ✅

(d) To create variables

13. Which statement about Python comments is correct?

a) They are executed by the interpreter

(b) They are ignored during execution ✅

(c) They store values

(d) They create variables

14. How are single-line comments written in Python?

a) // comment

(b) # comment ✅

(c) /* comment */

(d) -- comment

15. Which of the following is used for multi-line comments in Python?

a) // //

(b) ## ##

(c) Triple quotes (" " ") ✅

(d) <> </>

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

a) 2age

(b) age_2 ✅

(c) age-name

(d) for

17. What is the correct statement about variable naming in Python?

a) Variable names are not case-sensitive

(b) Keywords can be used as variable names

(c) Variable names are case-sensitive ✅

(d) Variables must start with a number

18. What will be the data type of value: 19.99?

a) int

(b) str

(c) float ✅

(d) bool

19. What does the input() function return by default?

a) Integer

(b) Float

(c) Boolean

(d) String ✅

20. Why is int() or float() used with input()?

a) To display output

(b) To convert input string into numeric type ✅

(c) To create variables

(d) To print data

21. What is an operator in Python?

a) A variable

(b) A symbol that performs operations on values ✅

(c) A data type

(d) A function

22. What is an expression in Python?

a) A single variable

(b) A combination of variables, operators, and values that produces a result ✅

(c) Only a number

(d) A comment

23. What will be the output of: 10 // 3 ?

a) 3.33

(b) 3 ✅

(c) 4

(d) 1

24. What does the % (modulus) operator return?

a) Quotient

(b) Remainder ✅

(c) Product

(d) Power

25. What will be the result of: 10 ** 3 ?

a) 30

(b) 100

(c) 1000 ✅

(d) 13

26. What is the result type of comparison operators?

a) Integer

(b) String

(c) Boolean (True/False) ✅

(d) Float

27. Which of the following is a compound assignment operator?

a) =

(b) ==

(c) += ✅

(d) !=

28. What is the purpose of logical operators?

a) To store values

(b) To perform mathematical operations

(c) To combine multiple conditions ✅

(d) To print output

29. What will be the result of: (3 + 4) * 2 ?

a) 11

(b) 14 ✅

(c) 10

(d) 7

30. Which operator has the highest precedence in Python?

a) Addition (+)

(b) Multiplication (*)

(c) Parentheses () ✅

(d) Subtraction (-)

31. What is the main purpose of control structures in programming?

a) To store data

(b) To control the flow of program execution ✅

(c) To define variables

(d) To print output

32. Which are the two main types of control structures in Python?

a) Input and Output

(b) Decision Making and Looping ✅

(c) Variables and Data Types

(d) Functions and Classes

33. What does an if statement do?

a) Repeats code

(b) Checks a condition and executes code if true ✅

(c) Stops execution

(d) Takes input

34. What happens if the condition in an if statement is False?

a) Code inside if runs

(b) Program stops

(c) Code inside if is skipped ✅

(d) Error occurs

35. What is the purpose of an if-else statement?

a) To repeat code

(b) To handle only true conditions

(c) To execute different blocks for true and false conditions ✅

(d) To define variables

36. Which of the following represents correct if-else logic?

a) if condition ⟶ run both blocks

(b) if condition ⟶ run true block, else ⟶ run false block ✅

(c) else always runs

(d) if is optional

37. What is the shorthand if-else statement used for?

a) Writing multi-line loops

(b) Writing conditional logic in a single line ✅

(c) Declaring variables

(d) Defining functions

38. What is the purpose of if-elif-else statement?

a) To check only one condition

(b) To check multiple conditions sequentially ✅

(c) To repeat code

(d) To stop execution

39. When does the else block execute in if-elif-else?

a) When all conditions are true

(b) When first condition is true

(c) When none of the conditions are true ✅

(d) Always

40. What is a loop used for in Python?

a) Decision making

(b) Repeating a block of code ✅

(c) Declaring variables

(d) Taking input

41. Which loop runs as long as a condition is true?

a) for loop

(b) while loop ✅

(c) if loop

(d) else loop

42. When does a while loop stop executing?

a) When condition becomes True

(b) When condition becomes False ✅

(c) When program ends

(d) Never stops

43. What is the main use of a for loop?

a) To check conditions

(b) To iterate over a sequence ✅

(c) To stop code

(d) To define variables

44. In a for loop, what does the variable represent?

a) Entire program

(b) Current element of the sequence ✅

(c) Loop condition

(d) Output

45. Which of the following is an example of a sequence in Python?

a) Integer

(b) List ✅

(c) Boolean

(d) Operator

46. What best defines a data structure in Python?

a) A syntax rule for writing code

(b) A predefined function in Python

(c) A systematic way to organize and store data efficiently in memory ✅

(d) A type of loop used for repetition

47. Why are lists considered important data structures?

a) They only store numbers

(b) They allow storage of multiple values in a single variable ✅

(c) They execute programs

(d) They replace functions

48. What is the primary advantage of using functions in Python?

a) They make programs slower

(b) They eliminate the need for variables

(c) They promote code reusability and modularity ✅

(d) They remove errors automatically

49. Which statement correctly describes a function definition in Python?

a) It must always return a value

(b) It starts with the keyword “def” and contains an indented block of code ✅

(c) It is executed immediately after writing

(d) It cannot take parameters

50. What happens when a function is called (invoked)?

a) It is deleted from memory

(b) Its code block is executed and control is transferred to it ✅

(c) It only stores values

(d) It compiles the program

51. What is the significance of return statement in a function?

a) It stops the program completely

(b) It prints output on screen

(c) It sends a value back to the caller function ✅

(d) It defines variables

52. What will happen if a function with a default parameter is called without arguments?

a) It produces an error

(b) It uses the default value defined in the function definition ✅

(c) It returns zero automatically

(d) It stops execution

53. Why are modules used in Python programming?

a) To slow down execution

(b) To organize related functions and reuse code efficiently ✅

(c) To replace variables

(d) To avoid writing loops

54. Which statement best describes importing a library in Python?

a) Writing new code from scratch

(b) Loading pre-written code to use its functions and features ✅

(c) Deleting unused functions

(d) Converting code into errors

55. What is the main advantage of organizing modules into packages?

a) It increases program errors

(b) It makes code longer and complex

(c) It helps in managing large programs in a structured way ✅

(d) It removes functions automatically

56. What is a list in Python?

a) A single variable

(b) A collection of ordered items that can be modified ✅

(c) A fixed data type

(d) A function

57. Which symbol is used to create a list in Python?

a) ()

(b) {}

(c) [] ✅

(d) <>

58. What is the index of the first element in a Python list?

a) 1

(b) 0 ✅

(c) -1

(d) 2

59. What happens when you access list[1]?

a) First element is accessed

(b) Second element is accessed ✅

(c) Third element is accessed

(d) Error occurs

60. Which method is used to add an item at the end of a list?

a) add()

(b) insert()

(c) append() ✅

(d) remove()

61. What does the remove() method do in a list?

a) Adds an item

(b) Deletes all items

(c) Removes the first occurrence of a value ✅

(d) Sorts the list

62. What does the sort() method do?

a) Reverses list

(b) Deletes list

(c) Arranges items in ascending order ✅

(d) Adds items

63. What is list slicing used for?

a) Changing variables

(b) Accessing a portion of a list ✅

(c) Deleting a program

(d) Creating functions

64. What is the result of list concatenation?

a) Deletion of lists

(b) Joining two lists into one ✅

(c) Sorting lists

(d) Reversing lists

65. What is a tuple in Python?

a) A mutable list

(b) An unordered collection

(c) An immutable ordered collection of items ✅

(d) A loop structure

66. Which statement is correct about tuples?

a) They can be modified

(b) They are immutable after creation ✅

(c) They cannot store numbers

(d) They are always empty

67. What does my_tuple[0] represent?

a) Second element

(b) Last element

(c) First element ✅

(d) Error

68. What does len(my_tuple) return?

a) First value

(b) Total number of elements in tuple ✅

(c) Index position

(d) Data type

69. What does negative indexing mean in Python?

a) Counting from start

(b) Counting from zero

(c) Counting from end of sequence ✅

(d) Random indexing

70. What is the main purpose of control structures in programming?

a) To store data

(b) To control the flow of program execution ✅

(c) To define variables

(d) To print output

71. What is modular programming in Python?

a) Writing one large program

(b) Dividing a program into smaller reusable modules ✅

(c) Removing functions from code

(d) Using only loops

72. What is the main advantage of modular programming?

a) Increases errors

(b) Makes code harder to read

(c) Improves code reuse and manageability ✅

(d) Removes debugging

73. What is the purpose of the main() function in Python?

a) To delete code

(b) To define variables

(c) To define program entry point ✅

(d) To stop execution

74. When does the main() function run in Python?

a) Always automatically

(b) Only when imported

(c) When script is executed directly ✅

(d) Never runs

75. What is a class in Object-Oriented Programming?

a) A variable

(b) A blueprint for creating objects ✅

(c) A loop

(d) A function call

76. What is an object in OOP?

a) A template

(b) An instance of a class with real values ✅

(c) A loop structure

(d) A module

77. What does a class define?

a) Only functions

(b) Only variables

(c) Attributes and behavior of objects ✅

(d) Input/output

78. What is the purpose of the self keyword in a class?

a) Refers to global variables

(b) Represents the instance of the class itself ✅

(c) Deletes object

(d) Imports modules

79. What is exception handling used for?

a) Writing loops

(b) Managing runtime errors gracefully ✅

(c) Creating variables

(d) Sorting data

80. Which block is used to test code for errors in Python?

a) catch

(b) try ✅

(c) error

(d) test

81. Which block handles errors in Python?

a) finally

(b) except ✅

(c) error

(d) catch

82. What happens if a ZeroDivisionError occurs in a try block?

a) Program crashes immediately

(b) except block handles the error ✅

(c) Code is deleted

(d) Output stops permanently

83. What is file handling in Python?

a) Creating loops

(b) Reading and writing files for data storage ✅

(c) Writing only variables

(d) Debugging code

84. Which mode is used to read a file?

a) w

(b) a

(c) r ✅

(d) x

85. What does 'w' mode do in file handling?

a) Reads file

(b) Appends data

(c) Overwrites file content ✅

(d) Deletes file

86. What does 'a' mode do in file handling?

a) Reads file

(b) Overwrites file

(c) Appends data to file ✅

(d) Closes file

87. What is the advantage of using "with open()" in file handling?

a) Increases speed

(b) Automatically closes file after use ✅

(c) Deletes file

(d) Encrypts file

88. What is testing in programming?

a) Writing code

(b) Checking if program works correctly with different inputs ✅

(c) Deleting errors

(d) Saving files

89. What is debugging?

a) Writing code

(b) Finding and fixing errors in a program ✅

(c) Running loops

(d) Creating variables

90. Which tool is used for step-by-step debugging in Python?

a) print() only

(b) pdb (Python Debugger) ✅

(c) input()

(d) compile()

❖ Important short Questions

1. Define Python.

Answer:

Python is a high-level, interpreted, and general-purpose programming language. It is easy to learn and widely used in fields like web development, data analysis, artificial intelligence, and automation.

Example:

Python

```
print("Hello World")
```

2. What is computer programming?

Answer:

Computer programming is the process of writing instructions (code) that a computer follows to perform specific tasks.

Example:

Python

```
a = 10

b = 5

print(a + b)
```


3. Write the steps of programming process.

Answer:

The main steps of programming are:

- Write Code – Write instructions in a programming language
- Compile/Interpret – Convert code into machine-readable form
- Execute – Run the program
- Output – Display the result

Example:

Python

```
print("Programming Process")
```

4. What is the purpose of a programming language?

Answer:

A programming language is used to communicate with the computer so that it can understand instructions and perform tasks.

Example:

Python

```
print(2 + 3)
```

5. Define function in Python.

Answer:

A function is a reusable block of code that performs a specific task. It helps in making programs organized and efficient.

Example:

Python

```
def greet():
    print("Hello Student")
greet()
```

6. What do you mean by module in Python?

Answer:

A module is a file containing Python code (functions, variables, classes) that can be used in other programs to avoid rewriting code.

Example:

Python

```
import math

print(math.sqrt(16))
```

7. What is the use of print() function?

Answer:

The print() function is used to display output on the screen.

Example:

Python

```
print("Welcome to Python")
```

8. Define variable in Python.

Answer:

A variable is a named memory location used to store data that can change during program execution.

Example:

Python

```
age = 20

print(age)
```

9. Write any two rules of variable naming in Python.

Answer:

- Variable name must start with a letter or underscore (_)
- Variable names are case-sensitive

Example:

Python

```
name = "Ali"

Name = "Sara"
```


10. What are data types? Name any two.

Answer:

Data types define the type of data stored in a variable.

Two data types:

1. Integer (int)
2. String (str)

Example:

Python

```
age = 25        # int
name = "Ali"    # str
```

11. What is the purpose of input() function?

Answer:

The input() function is used to take data from the user during program execution. It makes the program interactive. The value entered by the user is always treated as a string by default, even if it looks like a number.

Example:

Python

```
name = input("Enter your name: ")
print("Welcome", name)
```

12. What is output in Python programming?

Answer:

Output is the result shown by the program after execution. It is displayed on the screen using the print() function. Output represents the final result of the program's processing.

Example:

Python

```
print("Hello World")
```

13. Define operator with example.

Answer:

An operator is a symbol that is used to perform operations on variables or values. These operations can be mathematical, logical, or comparison-based.

Example:

Python

```
a = 10
b = 5
print(a + b)
```


14. What is an expression in Python?

Answer:

An expression is a combination of variables, operators, and values that is evaluated to produce a result. It is used to perform calculations or logic.

Example:

Python

```
result = (3 + 4) * 2

print(result)
```

15. What are comparison operators?

Answer:

Comparison operators are used to compare two values or variables. They return a Boolean result, either True or False, depending on whether the condition is correct or not.

Example:

Python

```
print(10 > 5)

print(10 == 5)
```


16. What are logical operators? Name them.

Answer:

Logical operators are used to combine multiple conditions in a program. They help in decision-making.

The three logical operators are:

and ⟶ returns True if both conditions are true

or ⟶ returns True if at least one condition is true

not ⟶ reverses the result

Example:

Python

```
print(5 > 3 and 2 < 4)
```

17. What is a list in Python?

Answer:

A list is a built-in data structure used to store multiple items in a single variable. A list can store different types of data and it is changeable (mutable).

Example:

Python

```
fruits = ["Apple", "Banana", "Mango"]

fruits.append("Orange")

print(fruits)
```

18. Define tuple in Python.

Answer:

A tuple is a collection of ordered items like a list, but it is immutable, meaning its values cannot be changed after creation.

Example:

Python

```
t = (10, 20, 30)

print(t)
```

19. Differentiate between list and tuple.

Answer:

A list is mutable, meaning its elements can be changed after creation, while a tuple is immutable and cannot be changed.

A list uses square brackets [ ], while a tuple uses round brackets ( ).

Lists are slower and consume more memory compared to tuples, while tuples are faster and more memory efficient.

Example:

Python

```
list1 = [1, 2, 3]

tuple1 = (1, 2, 3)
```

20. What is indexing in Python?

Answer:

Indexing is the process of accessing elements of a sequence using their position number. Python indexing starts from 0, meaning the first element is at index 0.

Example:

Python

```
fruits = ["Apple", "Banana", "Mango"]

print(fruits[1])
```

21. What is slicing in Python?

Answer:

Slicing is used to extract a portion of a sequence like a list, tuple, or string. It uses start index, stop index, and step value.

Example:

Python

```
nums = [1, 2, 3, 4, 5]

print(nums[1:4])
```


22. Define loop in Python.

Answer:

A loop is a control structure that is used to execute a block of code repeatedly until a condition is satisfied. It helps to reduce repetition in code.

Example:

Python

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

23. Differentiate between while loop and for loop.

Answer:

A while loop runs as long as a condition is true and may run indefinitely if the condition is not controlled properly.

A for loop runs for a fixed number of iterations or over a sequence of items.

While loops are condition-based, while for loops are count-based or sequence-based.

Example:

Python

```
i = 0
while i < 3:
    print(i)
    i += 1
for i in range(3):
    print(i)
```

24. What is exception handling in Python?

Answer:

Exception handling is a method used to handle runtime errors so that the program does not stop unexpectedly. It allows the program to continue execution even after an error occurs.

Example:

Python

```
try:
    print(10 / 0)
except:
    print("Error occurred")
```

25. What is debugging? Why is it used?

Answer:

Debugging is the process of finding and fixing errors in a program. It is used to make sure that the program works correctly and produces the expected output.

It helps programmers identify mistakes in logic, syntax, or runtime behavior.

Example:

Python

```
x = 5

y = 0

print("Debugging process")
```

Note:

This chapter is designed to provide a solid foundation of knowledge, with the goal of deepening understanding and encouraging further exploration of the subject. The content has been carefully selected to support effective learning and inspire students to engage with the topic more deeply.

Author: Muhammad Asghar

Purpose: To contribute to education by offering insightful, valuable content that enhances learning and understanding.