

MCA 102A – Programming in Python
Comprehensive Practical Viva Question Bank (With Answers)

UNIT I: Introduction to Python

1. **What is Python?**
Python is a high-level, interpreted, object-oriented programming language.
2. **Why is Python called an interpreted language?**
Because the Python interpreter executes the program line by line.
3. **What is bytecode?**
Bytecode is the intermediate compiled code (.pyc file) generated from Python source code.
4. **What is Python Virtual Machine (PVM)?**
PVM is the virtual machine that executes Python bytecode.
5. **What are the components of a Python program?**
Comments, variables, data types, operators, statements, functions, classes, and modules.
6. **What are the main features of Python?**
Simple syntax, platform independent, dynamic typing, object-oriented, and large standard library.
7. **What is memory management in Python?**
Python automatically manages memory allocation and deallocation.
8. **What is garbage collection?**
It is the automatic process of removing unused objects from memory.
9. **What is pip?**
pip is the package installer used to install Python libraries.
10. **How do you install a Python package?**
Using the command: `pip install package_name`
11. **How do you verify installed packages?**
Using the command: `pip list`
12. **What is pandas?**
Pandas is a Python library used for data analysis and data manipulation.

UNIT II: Data Types and Operators

13. **What are built-in data types in Python?**
int, float, complex, bool, str, list, tuple, set, dict.
14. **What is dynamic typing?**
The data type of a variable is decided at runtime.
15. **What is a string?**
A string is a sequence of characters enclosed in single or double quotes.
16. **What is a list?**
A list is an ordered and mutable collection of elements.
17. **What is a tuple?**
A tuple is an ordered and immutable collection of elements.
18. **What is a set?**
A set is an unordered collection of unique elements.

19. **What is a dictionary?**
A dictionary is a collection of key-value pairs.
20. **What are literals?**
Fixed constant values such as numbers, strings, True, False.
21. **What are identifiers?**
Names used to identify variables, functions, and classes.
22. **What are arithmetic operators?**
+, -, *, /, %, **, //
23. **What are relational operators?**
<, >, <=, >=, ==, !=
24. **What are logical operators?**
and, or, not
25. **What are bitwise operators?**
&, |, ^, ~, <<, >>
26. **What are membership operators?**
in, not in
27. **What are identity operators?**
is, is not
28. **What is the difference between == and is?**
== compares values.
is compares memory location.
29. **What is type() function?**
It returns the data type of a variable.
30. **What is type casting?**
Converting one data type into another.

UNIT III: Control Statements and Arrays

31. **What is input() function?**
It is used to take input from the user.
32. **What is print() function?**
It is used to display output.
33. **What is an if statement?**
A decision-making statement used to execute code based on a condition.
34. **What is if-elif-else ladder?**
It is used to check multiple conditions.
35. **What is a while loop?**
A loop that runs as long as the condition is true.
36. **What is a for loop?**
A loop used to iterate over a sequence.
37. **What is break statement?**
It terminates the loop immediately.
38. **What is continue statement?**
It skips the current iteration.
39. **What is pass statement?**
A null statement used as a placeholder.
40. **What is nested loop?**
A loop inside another loop.
41. **What is an infinite loop?**
A loop that runs without a termination condition.

42. What is return statement?

It returns a value from a function.

43. What is an array?

An array is a collection of similar data elements stored in contiguous memory locations.

44. How do you create an array in Python?

Using the array module or NumPy library.

45. What are array dimensions?

The number of indices required to access elements.

46. What are advantages of arrays?

Efficient storage and faster processing of similar data.

UNIT IV: Components and Functions

47. What is a function?

A reusable block of code.

48. How do you define a function?

Using the def keyword.

49. What are parameters?

Variables defined in the function definition.

50. What are arguments?

Values passed to a function.

51. What is a default argument?

A parameter with a default value.

52. What is a keyword argument?

An argument passed using the parameter name.

53. **What are *args and kwargs?

*args allows a function to accept any number of positional arguments.

**kwargs allows a function to accept any number of keyword arguments.

54. What is recursion?

A function calling itself.

55. What is lambda function?

An anonymous function defined using the lambda keyword.

56. Can a function return multiple values?

Yes, by returning them as a tuple.

57. What is list comprehension?

A concise way to create lists in a single line.

58. What are common list methods?

append(), insert(), remove(), pop(), sort().

59. What is a nested list?

A list inside another list.

60. What are dictionary methods?

keys(), values(), items(), update().

UNIT V: OOPS and Data Structures

61. What is OOPS?

Object Oriented Programming System.

62. What is a class?

A blueprint for creating objects.

63. What is an object?

An instance of a class.

64. What is a constructor?

A special method **init()** used to initialize objects.

65. What is encapsulation?

Binding data and methods together.

66. What is abstraction?

Hiding implementation details.

67. What is inheritance?

A child class acquiring properties of a parent class.

68. What is polymorphism?

Same method behaving differently in different situations.

69. What is method overriding?

Redefining a parent class method in a child class.

70. What is an exception?

A runtime error.

71. What is try-except block?

Used to handle exceptions.

72. What is finally block?

A block that executes whether an exception occurs or not.

73. What is a stack?

A LIFO (Last In First Out) data structure.

74. What is a queue?

A FIFO (First In First Out) data structure.

75. What is a linked list?

A linear data structure where elements are connected using pointers.

76. What is deque?

A double-ended queue.

77. What is datetime module?

A module used to work with date and time.

78. What is database connectivity in Python?

Connecting Python programs to databases using modules like sqlite3.