United College of Engineering & Research, Prayagraj
Computer Science and Engineering Department
Python Important Questions for AKTU 4th Semester

Short Answer Questions

- What is the difference between list and tuples in Python?
- In some languages, every statement ends with a semi-colon (;). What happens if you put a semi-colon at the end of a Python statement?
- Mention five benefits of using Python.
- How is Python an interpreted language?
- What type of language is python?
- What are local variables and global variables in Python?
- What is the difference between Python Arrays and lists?
- Define ADT interface.
- Define floor division with example.
- Differentiate Fruitful functions and void functions.
- What are the common built-in data types in Python?
- What is pass in Python?
- What is the use of self in Python?
- What is __init__?
- What is break, continue and pass in Python?
- What is slicing in Python?
- What is the difference between Python Arrays and lists?
- What are iterators in Python?
- Explain split() and join() functions in Python?

Long Answer Questions

- What are modules and packages in Python?
- How do you create a class in Python?
- How does inheritance work in python? Explain it with an example.
- Explain Expression Evaluation & Float Representation with example. Write a Python Program for How to check if a given number is Fibonacci number.
- Explain the purpose and working of loops. Discuss Break and continue with example. Write a Python program to convert time from 12 hour to 24-hour format.
- Explain higher order function with respect to lambda expression.
- Write a Python code to Count occurrences of an element in a list.
- Explain Unpacking Sequences, Mutable Sequences, and List Comprehension with example.
- Write a program to sort list of dictionaries by values in Python – Using lambda function.
- Discuss File I/O in python. How to perform open, read, write, and close into a file? Write a Python program to read a file line-by-line store it into a variable.
- Discuss Exceptions and Assertions in python.
- How to handle Exceptions with Try-Finally? Explain 5 Built-in Exceptions with example.
- Discuss and differentiate Iterators & Recursion. Write a program for Recursive Fibonacci series.
- Discuss Sorting & Merging. Explain different types of sorting with example.
- Write a Python Program for Sieve of Eratosthenes.
- Describe Arithmetic Operators, Assignment Operators, Comparison Operators, Logical Operators and Bitwise Operators in detail with examples.
- Explain the Identifiers, Keywords, Statements, Expressions, and Variables in Python programming language with examples.
- Explain the basic data types available in Python with examples.
- Write Python Program to reverse a number and also find the Sum of digits in the reversed number. Prompt the user for input.
- Write Pythonic code to check if a given year is a leap year or not.
- Write Python program to find the GCD of two positive numbers.

- Write Python code to determine whether the given string is a Palindrome or not using slicing.
- Explain the use of join() and split() string methods with examples. Describe why strings are immutable with an example.
- Write Python program to count the total number of vowels, consonants and blanks in a String.
- Write Python program to add two matrices and also find the transpose of the resultant matrix.
- Input five integers (+ve and −ve). Write Pythonic code to find the sum of negative numbers, positive numbers and print them. Also, find the average of all the numbers and numbers above average.
- Write Pythonic code to find Mean, Variance and Standard Deviation for a list of numbers.
- Discuss the relation between tuples and lists, tuples and dictionaries in detail.
- Write Python program to swap two numbers without using Intermediate/Temporary variables. Prompt the user for input.
- Write a program that accepts a sentence and calculate the number of digits, uppercase and lowercase letters.
- Write Pythonic code to sort a sequence of names according to their alphabetical order without using sort() function.
- Illustrate the following Set methods with an example.
  a) intersection() b) union() c) issubset() d) difference() e) update() f) discard()
- Write a Python function average to compute the average of a list of numbers. The function must use try-except to handle the case where the input list is empty. Further, in that case the average for the empty list should be set to 0.0 using the except block.
- Describe the differences between a linear search and a binary search?
- Write a function lessthan(lst, k) to return list of numbers less than k from a list lst. The function must use list comprehension. Example: lessthan([1, -2, 0, 5, -3], 0) returns [-2, -3]
- Write a program factors(N) that returns a list of all positive divisors of N (N>=1). For example: factors(6) returns [1,2,3,6] factors(1) returns [1] factors(13) returns [1,13]
- How can you create Python file that can be imported as a library as well as run as a standalone script?

- Describe the difference between import library and from library import * when used in a python program. Here library is some python library.
- Write a function makePairs that takes as input two lists of equal length and returns a single list of same length where k-th element is the pair of k-th elements from the input lists. For example, makePairs([1,3,5,7],[2,4,6,8]) returns [(1,2),(3,4),(5,6),(7,8)] makePairs([],[]) returns []
- Show an example where both Keyword arguments and Default arguments are used for the same function in a call. Show both the definition of the function and its call.
- Explain why Python is considered an interpreted language.