

Python Programming (KNC-402)

COs	Course Outcome
CO1	Able to define [1. Remember] the basic terminologies of Python programming
CO2	Able to describe [2. Understand] conditional statements, loops, functions, data structures in Python Programming
CO3	Able to construct [3. Apply] the object-oriented Python Programs
CO4	Able to examine [4. Analyze] usage of searching, sorting & exception handling.

M. M. 100

Time: 3 Hrs.

Section A

(2X10 = 20 Marks)

Q1. Attempt all questions:

- | | |
|--|-----|
| a) Define <i>self</i> in the context of OOP in python. | CO1 |
| b) Describe format() method of string in python. | CO1 |
| c) Define pop() and append() methods of list with example. | CO1 |
| d) Explain the properties of dictionary with example. | CO2 |
| e) Describe various scopes of variable with suitable example. | CO1 |
| f) Describe how <i>key</i> and <i>value</i> pair can be accessed using "for loop" on dictionary. | CO1 |
| g) Define zip() method in the context of tuple with example. | CO1 |
| h) Differentiate write() and writelines() methods in file handling. | CO2 |
| i) Explain name mangling in the context of OOP in Python. | CO2 |
| j) Explain any two methods of <i>set</i> with the help of an example in python. | CO2 |

Section B

(10X3 = 30 Marks)

Q2. Attempt all questions:

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|--|-----|
| a) Illustrate the ways to read and write data in text file with the help of python program. | CO3 |
| b i) Explain the types of constructor in Python with the help of example. | CO2 |
| OR | |
| ii) Explain various exception handling blocks in python with example. | CO2 |
| c i) Illustrate list comprehension with suitable example. | CO4 |
| OR | |
| ii) Illustrate the recursive approach in Fibonacci series and also write a program to find n th term of Fibonacci series using recursion. | CO4 |

Section C

Q3. Attempt all questions:

(10X5 = 50 Marks)

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|--|-----|
| a i) Explain multiple inheritance in Python and also explain how method resolution is done in multiple inheritance. | CO3 |
| OR | |
| ii) Explain various types of inheritance with suitable example in python. | CO3 |
| b i) Illustrate the approach of binary search algorithm with the help of Python program and also compare its time complexity with linear search algorithm. | CO3 |
| OR | |
| ii) Illustrate the approach of merge sort algorithm with the help of Python program and also analyze its time complexity in various cases. | CO3 |

- c i) Differentiate Abstraction and Encapsulation in the context of OOP in python. CO2
OR
CO2
- ii) Explain the concept of Tower of Hanoi with the help of an example. CO2
- d i) Discuss the given higher order functions in python-
(a) lambda()
(b) map()
(c) reduce()
(d) filter()
OR
- ii) Discuss various conditional statements used in python with suitable example. CO2
- e i) Illustrate the Sieve of Eratosthenes algorithm for finding prime numbers with the help of python program. CO3
OR
- ii) Illustrate immutability of tuple and string. Also, write any 5 methods applicable on string. CO3