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| **SESSION** | **NOVEMBER 2024** |
| **PROGRAM** | **BACHELOR OF COMPUTER APPLICATIONS (BCA)** |
| **SEMESTER** | **5** |
| **COURSE CODE & NAME** | **DCA3104 PYTHON PROGRAMMING** |
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**Set-I**

**1. a) Discuss different datatypes used in Python Programming.**

**b) Explain the concept of operator precedence with example. 5+5**

**Ans 1.**

**a. Different Datatypes Used in Python Programming**

Python provides a variety of built-in datatypes that allow programmers to handle data efficiently and dynamically. The most common datatypes in Python include numbers, strings, lists, tuples, sets, and dictionaries.

Firstly, the **numeric datatypes** in Python include int, float, and complex. The int datatype represents integers such as 5, -20, or 1000, whereas the float datatype is used for decimal numbers like 3.14, -0.76, or 2.0. The complex datatype, such as 2+3j, represents numbers with real and imaginary components. These numerical datatypes are essential for performing mathematical

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**2.a) Discuss the use of else statement with for and while loop. Explain with an example.**

**b) Explain the use of following string functions: - upper(), lower(), isdigit(), isalpha(), split(), join() with example.**

**Ans 2.**

**a. Use of Else Statement with For and While Loop**

The else statement in Python can be used with both for and while loops to execute a block of code after the loop has completed its iterations successfully. The else block is executed only if the loop is not terminated prematurely by a break statement.

In the case of a for loop, the else block executes when all iterations are complete. For example:

for i in range(5):

 print(i)

else:

 print("Loop completed successfully")

Here, the loop runs from 0 to 4, and once all iterations are completed, the else block executes, printing "Loop completed successfully."

With a while loop, the else block is executed only if the loop condition becomes False naturally,

**3.a) How to delete an element from list? Explain different cases with examples.**

**b) Explain differences between list, tuple, set and dictionary.**

**Ans 3.**

**a. How to Delete an Element from a List?**

Deleting an element from a list in Python can be done using various methods depending on the specific requirements, such as the position of the element, its value, or a general need to clear the list. Python provides several ways to delete elements from a list, and these methods can be categorized into different cases:

**1. Deleting by Index using del:** The del statement is used to delete an element at a specific index. It can also delete slices of elements. If the index is not valid (out of range), Python raises an IndexError.
For example:

**Set-II**

**4.a) What is lambda function? Why is it used?**

**b) Explain differences between remove(), discard( ) and pop( ) method for deleting elements from set. 5+5**

**Ans 4.**

**a. Lambda Function**

A **lambda function** in Python is a small, anonymous function defined using the lambda keyword. Unlike regular functions, which are defined using the def keyword, a lambda function can have only one expression. The syntax of a lambda function is:

lambda arguments: expression

The result of the expression is returned automatically. Lambda functions are often used when a function is needed temporarily for a short period, typically as an argument to another function,

**5. What is exception handling? Write a Python program which would throw exception if the**

**value entered by user is less than zero or zero otherwise print it.**

**Ans 5.**

**Exception Handling**

Exception handling in Python refers to the mechanism that allows a program to respond to unexpected situations, also called exceptions, during its execution. Exceptions are errors or events that interrupt the normal flow of a program. Common exceptions include division by zero, file not found, invalid input, or accessing an out-of-range index. Python uses the try, except, else, and finally blocks to handle exceptions gracefully without abruptly stopping the program.

* **try block**: The code that may raise an exception is placed in the try block.
* **except block**: If an exception occurs, the program jumps to the except block where the

**6. a) Explain the use of pandas, NumPy and matplotlib libraries in detail.**

**b) What are CRUD operations? 5+5**

**Ans 6.**

**a. Use of Pandas, NumPy, and Matplotlib Libraries**

Python provides several libraries for data manipulation, numerical computations, and data visualization. Among them, **Pandas**, **NumPy**, and **Matplotlib** are widely used.

**1. Pandas:** Pandas is a powerful library for data manipulation and analysis. It provides two main data structures: **DataFrame** (2D) and **Series** (1D). Pandas allows importing, cleaning, and analyzing structured data efficiently. Key operations include reading and writing data from files, handling missing values, grouping, and filtering data.

Example:

import pandas as pd