Rayat Shikshan Sanstha's,

# Rajarshi Chhatrapati Shahu College, Kolhapur

**Department of Commerce IT**

**B. Com IT – III** **Python Programming**

## UNIT–1: Introduction to Python

### Short Answer

1. Describe the steps involved in installing Python and the Spyder IDE.
2. Explain the role of the Python interpreter and how it works.
3. Write a short note on the history of Python.
4. List and explain the key features of Python.
5. Discuss some common applications of Python in real-world scenarios.
6. Define data types in Python. Give examples of each.
7. Explain the different types of operators in Python with examples.
8. What is operator precedence in Python? Explain with an example.
9. Differentiate between expressions and statements in Python.
10. What is a function in Python? Explain the use of comments in Python programs.

### Long Answer

1. Discuss the installation of Python and setting up Spyder IDE in detail.
2. Explain the features and advantages of using Python over other programming languages.
3. Describe Python's history, evolution, and its significance in modern programming.
4. Explain the different data types in Python, including mutable and immutable types.
5. Discuss Python's operators, operator precedence, and the order of operations with examples.
6. Explain the concept of functions in Python. How do you define and call functions? Discuss the importance of functions in Python programs.
7. Write a Python program to demonstrate string manipulation and string methods.

## UNIT–2: Control Flow and Loops

### Short Answer

1. What are Boolean values in Python? Explain how Boolean operators work.
2. Explain the conditional `if` statement in Python with an example.
3. Write a program using `if-else` statements to check whether a number is positive or negative.
4. What is the difference between `if-else` and `if-elif-else` statements in Python?
5. Describe a `while` loop in Python. What is an infinite loop? Provide examples.
6. Explain how to iterate through a sequence using a `for` loop in Python.
7. How does the `else` statement work with loops in Python?
8. What is a nested loop in Python? Provide an example.
9. What are the `break`, `continue`, and `pass` statements in Python? Explain with examples.
10. Write a short note on lambda functions in Python.

### Long Answer

1. Discuss the various conditional statements in Python, including `if`, `if-else`, and `if-elif-else`.
2. Explain the `while` loop, `for` loop, and how `else` can be used with loops in Python.
3. Describe the concept of nested loops in Python with an example.
4. Explain the working of the `break`, `continue`, and `pass` statements in Python with examples.
5. Write a Python program to demonstrate the use of loops and conditionals to solve a real-world problem.
6. What are lambda functions in Python? Discuss their use and advantages over regular functions.

## UNIT–3: Lists, Tuples, Dictionaries, and Sets

### Short Answer

1. How do you create a list in Python? Explain list indexing and slicing.
2. What are some of the common list methods in Python? Give examples.
3. Explain how to add and remove items from a list in Python.
4. How do tuples differ from lists in Python? Give an example.
5. Discuss the operations that can be performed on tuples in Python.
6. How do you create a dictionary in Python? How can you access and modify its elements?
7. Explain the properties of dictionary keys in Python.
8. How are sets different from lists and dictionaries? Explain set operations.
9. What are the common set operations in Python? Give examples.
10. Discuss the concept of list slices in Python with examples.

### Long Answer

1. Explain how to create, modify, and access elements of a list in Python. Discuss common list methods.
2. Compare lists and tuples in Python. Discuss the advantages and disadvantages of both.
3. How do you create and access elements in a tuple? Discuss basic tuple operations like indexing, slicing, and updating.
4. Explain dictionaries in Python, focusing on accessing, updating, and deleting dictionary elements.
5. Discuss the properties of dictionary keys and how they are used in Python.
6. What are sets in Python? Explain set operations like union, intersection, and difference with examples.
7. Compare and contrast lists, tuples, dictionaries, and sets in Python.

## UNIT–4: Modules, File I/O, GUI

### Short Answer

1. What is the `import` statement in Python? Give examples of importing modules.
2. List and explain some commonly used Python modules such as `datetime`, `calendar`, and `math`.
3. How do you open and read from a text file in Python? Provide an example.
4. Explain how to write data to a text file in Python.
5. What is a GUI in Python? Give an introduction to GUI programming.
6. What is the `datetime` module in Python? How can you use it to work with dates and times?
7. Write a Python program to demonstrate basic file reading and writing operations.
8. How do you handle errors when working with file I/O in Python?

### Long Answer

1. Explain how to import and use Python modules. Discuss the purpose of the `import` statement and how to use built-in modules like `datetime`, `calendar`, and `math`.
2. Write a Python program to read from and write to a text file. Explain the importance of file handling in Python.
3. Discuss the process of building a simple GUI application using Python. What are the common libraries used for GUI development in Python?
4. Explain the `datetime` module in detail, focusing on its functions and usage to manipulate date and time.
5. Write a Python program to demonstrate basic file I/O operations, including reading, writing, and appending data.
6. Discuss error handling and exceptions in Python, particularly in the context of file I/O.