

GOVERNMENT DEGREE COLLEGE, NANDIKOTKUR

DEPARTMENT OF COMPUTER APPLICATIONS

PYTHON PROGRAMMING

UNIT-I: Getting Started with Python

Short Answer Questions:

1. What are the key features of Python?
2. Define keywords, identifiers, and variables in Python.
3. Explain the use of comments in Python.
4. List the different data types available in Python.
5. Describe the input and output functions in Python.
6. What is type conversion? Give an example.
7. Explain the purpose of break and continue statements.
8. List some string handling functions in Python.

Long Answer Questions:

1. Discuss the flow of control in Python, including selection, indentation, and repetition structures.
2. Explain the different types of operators in Python with examples.
3. Describe the operations that can be performed on strings and provide examples.
4. Write a Python program that demonstrates nested loops and the use of break and continue statements.

UNIT-II: Functions and Object-Oriented Programming in Python

Short Answer Questions:

1. What is the difference between built-in functions and user-defined functions in Python?
2. Explain the concept of recursion with an example.
3. Define the scope of a variable in Python.

4. What is inheritance in Python?
5. Explain the purpose of modules and packages in Python.
6. What are exceptions? List some common exceptions in Python.
7. How do you create a user-defined exception in Python?

Long Answer Questions:

1. Explain the process of defining and calling functions in Python with examples.
2. Discuss the principles of object-oriented programming (OOP) in Python, including inheritance and polymorphism.
3. Write a Python program that uses the datetime and math modules to perform date and mathematical operations.
4. Describe the process of handling exceptions in Python, including try, except, and finally blocks.

UNIT-III: Lists, Tuples, and Dictionaries

Short Answer Questions:

1. Define a list in Python. How is it different from a tuple?
2. List some common list operations in Python.
3. What is a nested tuple? Give an example.
4. Explain the concept of mutable and immutable data types with examples.
5. How do you traverse a dictionary in Python?
6. List some built-in methods for dictionaries.
7. What are the advantages of using dictionaries over lists?

Long Answer Questions:

1. Discuss list operations and methods in Python with examples.
2. Explain the differences between lists, tuples, and dictionaries in Python.
3. Write a Python program to demonstrate nested dictionaries and their traversal.

4. Describe the various methods and functions available for dictionaries in Python with examples.

UNIT-IV: NumPy and Pandas

Short Answer Questions:

1. What is NumPy, and why is it used in Python?
2. Define a NumPy array. How is it different from a list?
3. Explain the process of indexing and slicing in a NumPy array.
4. What are statistical operations on arrays in NumPy?
5. Describe the purpose of a DataFrame in Pandas.
6. How do you import and export data between CSV files and Pandas DataFrames?
7. Compare Pandas Series with NumPy ndarray.

Long Answer Questions:

1. Explain array operations in NumPy, including concatenation, reshaping, and splitting.
2. Describe the features of Pandas and its key data structures.
3. Write a Python program to load a CSV file into a Pandas DataFrame and perform basic data analysis.
4. Discuss the advantages of using Pandas and NumPy for data handling and analysis in Python.

UNIT-V: Data Visualization and GUI Programming

Short Answer Questions:

1. What is the purpose of Matplotlib in Python?
2. List different types of charts available in Matplotlib.
3. How do you create a line chart using Matplotlib?
4. What are the main components of the Tkinter module?
5. Explain how to create a button and a label in Tkinter.

6. How do you connect Python to a MySQL database?
7. Describe the process of forming and passing a query to MySQL.

Long Answer Questions:

1. Explain the steps for plotting various types of charts (line, bar, histogram, scatter, pie) using Matplotlib.
2. Write a Python program to create a simple GUI using Tkinter, including labels, text boxes, and buttons.
3. Discuss the process of database connectivity in Python using MySQL, including inserting and retrieving data.
4. Describe how to use Matplotlib for data visualization, and explain the importance of data visualization in data analysis.