NARSIMHA REDDY ENGINEERING COLLEGE
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Maisammaguda (V), Kompally - 500100, Secunderabad, Telangana state, India

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

SUBJECT: NR21: NR21: CS4121OE:-Python Programming

Unit 1

S.no	Questions	BT	CO
	Part–A(Short Answer Questions)		
1	What are the steps to install Python on your operating system?	L1	CO1
2	How can you verify that Python is installed correctly on your system?	L1	CO1
3	What are the different ways you can run Python code?	L1	CO1
4	What are some common Python IDEs ?	L1	CO1
5	Why are comments important in a program?	L1	CO1
6	How do you write single-line and multi-line comments in Python?	L1	CO1
7	What are the primary data types in Python?	L2	CO1
8	How do you perform operations with strings, such as concatenation or slicing?	L1	CO1
9	What is the difference between mutable and immutable data types?	L2	CO1
10	What is a nested loop, and when might you use one?	L1	CO1
	Part–B(Long Answer Questions)		
1	Explain the basic process of how a Python program is executed.	L2	CO1
2	What is the role of the Python interpreter?	L3	CO1
3	Describe the stages of the program development cycle.	L4	CO1
4	Why is debugging an essential part of program development?	L2	CO1
5	What are the rules for naming variables in Python? Discuss	L2	CO1
6	How do you assign a value to a variable?	L4	CO1
7	What are the basic arithmetic operators in Python?	L2	CO1
8	Explain the difference between integer divisions and float	L3	CO1

	division.		
9	Explain the is a function, and how do you define one in Python?	L2	CO1
10	What are modules, and how do you import them in a Python program? Explain	L4	CO1

Unit-II

S.no	Questions	BT	CO
	Part–A(Short Answer Questions)		
1	How are arguments passed to functions in Python? What are the different ways to pass arguments?	L1	CO2
2	What are global variables and constants, and when should they be used?	L1	CO2
3	What is a value-returning function, and how can it be used to generate random numbers in Python?	L1	CO2
4	What is the math module in Python, and what are some common functions it provides?	L1	CO2
5	What is a module in Python, and how can functions be stored in modules?	L1	CO2
6	Write a Python script that imports a custom module containing a function for calculating the factorial of a number.	L1	CO2
7	Define iteration.	L1	CO2
8	What is meant by local variable?	L1	CO2
9	Write the Global Variables and Global Constants.	L1	CO2
10	Give a note on The math Module.	L1	CO2
	Part–B(Long Answer Questions)		
1	What is a definite iteration, and how is it implemented in Python?	L4	CO2
2	Write a Python program that uses a for loop to print the numbers from 1 to 10.	L3	CO2
3	Explain how to format strings in Python using the f-string method.	L4	CO2
4	Given a list of tuples containing a person's name and their score, write a Python program to print each person's name and score in a nicely formatted manner	L2	CO2
5	Explain the selection statement.	L2	CO2
6	Write a Python function that takes an integer as input and prints whether the number is positive	L4	CO2
7	How do you open, read, and write to a file in Python? Provide a brief example.	L1	CO2

8	Write a Python program that prompts the user for a file name, attempts to open the file, and handles any exceptions that occur (e.g., file not found).	L3	CO2
9	Explain the process of designing a program using functions. What are the benefits of this approach?	L2	CO2
10	Write a program that uses at least three functions: one for input, one for processing, and one for output.	L4	CO2

Unit-III

S.no	Questions	BT	CO
Part–A(Short Answer Questions)			
1	How do you access the first and last characters of a string in Python?	L1	CO3
2	What is string slicing, and how can it be used to extract a substring?	L1	CO3
3	How can you convert a string representing a number into an integer or float in Python?	L1	CO3
4	What are some methods to format numbers as strings in Python?	L1	CO3
5	What is the difference between str.upper() and str.lower() methods?	L1	CO3
6	How does the str.replace() method work? Provide an example.	L1	CO3
7	What happens when you use the + operator with two strings in Python?	L1	CO3
8	How can you repeat a string multiple times using an operator?	L1	CO3
9	How can you check if a substring exists within a string in Python?	L1	CO3
10	What methods are available to remove leading and trailing spaces from a string?	L1	CO3
Part–B(Long Answer Questions)			
1	What is a list in Python, and how is it different from an array?	L2	CO3
2	How can you create an empty list and a list with initial values?	L3	CO3
3	Explain the dictionaries in Python, and how are they different from lists and tuples	L4	CO3
4	Difference between shallow and deep copies	L3	CO3
5	Explain the Two-Dimensional Lists	L2	CO3
6	Discuss Finding Items in Lists with the in Operator	L4	CO3

7	List Methods and Useful Built-in Functions	L4	CO3
8	Explain the Strings and Number System	L3	CO3
9	Discuss the Testing, Searching, and Manipulating Strings	L2	CO3
10	Explain the Accessing Characters and Substrings in a String	L4	CO3

Unit-IV

S.no	Questions	BT	CO
	Part–A(Short Answer Questions)		
1	What is the difference between a class and an object in Python?	L1	CO4
2	How do you define a class in Python? Provide a basic example.	L1	CO4
3	Explain the role of the __init__ method in a Python class.	L1	CO4
4	How do you instantiate an object from a class?	L1	CO4
5	What is the purpose of the self keyword in class methods?	L1	CO4
6	What are instance methods, and how do they differ from class methods and static methods?	L1	CO4
7	How do you define a class method in Python? Give an example.	L1	CO4
8	What is a static method, and when should you use it?	L1	CO4
9	How does the @staticmethod decorator affect a method's behavior?	L1	CO4
10	How can you override a method in a derived class?	L1	CO4
	Part–B(Long Answer Questions)		
1	What are special methods (or magic methods) in Python? Give three examples and explain their use.	L2	CO4
2	What is inheritance, and how is it implemented in Python?	L3	CO4
3	How does the super() function work in Python?	L4	CO4
4	Explain polymorphism with an example in Python.	L4	CO4
5	What is method overriding, and how does it relate to polymorphism?	L3	CO4
6	What are the main differences between procedural and object-oriented programming?	L4	CO4
7	How does encapsulation contribute to the principles of OOP?	L2	CO4
8	In what scenarios would you prefer procedural programming over object-oriented programming?	L3	CO4

9	What is encapsulation, and why is it important in class design?	L2	CO4
10	How does abstraction help in designing better classes?	L4	CO4

Unit-V

S.no	Questions	BT	CO
Part–A(Short Answer Questions)		
1	How does the behavior of terminal based programs differ from GUI-based programs?	L1	CO5
2	What are the advantages and disadvantages of using GUIs over terminal	L1	CO5
3	What are the basic steps to create a simple GUI application using tkinter?	L1	CO5
4	How can you create and display a window using tkinter?	L1	CO5
5	How do you use Label widgets to display text in a tkinter application?	L1	CO5
6	What is the purpose of Frame widgets, and how do they help in organizing other widgets?	L1	CO5
7	How do Button widgets work, and how can you attach functions to them?	L2	CO5
8	How can you use Entry widgets to get input from users?	L1	CO5
9	How can Label widgets be used to display output or results in a tkinter application?	L1	CO5
10	What are RadioButton and CheckButton widgets, and how do they differ in functionality?	L1	CO5
Part–B(Long Answer Questions)		
1	What is image processing, and what are some common tasks you can perform (e.g., resizing, filtering, transformations)	L2	CO5
2	Which Python libraries are commonly used for image processing, and what are their basic functionalities?	L3	CO5
3	What are some recommended books, tutorials, or online courses for learning more about tkinter and GUI programming?	L4	CO5
4	How can you find examples and practice problems to improve your GUI programming skills?	L2	CO5
5	What is image processing, and what are some common tasks you can perform (e.g., resizing, filtering, transformations)?	L3	CO5
6	Which Python libraries are commonly used for image processing,	L4	CO5

	and what are their basic functionalities?		
7	How can you draw different shapes (like circles, squares, etc.) using Turtle Graphics or other libraries?	L2	CO5
8	How does the RGB color system work, and how can you apply colors to shapes?	L3	CO5
9	Explain the Graphical User Interface.	L3	CO5
10	Discuss the Behavior of terminal based programs and GUI-based programs.	L4	CO5