


<b>Name:</b> <b>Enrolment No:</b>			
<b>UPES</b> <b>End Semester Examination, Dec 2024</b>			
<b>Course: Python Programming</b> <b>Program: MCA</b> <b>Course Code: CSEG7022</b>		<b>Semester: I</b> <b>Time: 03 hrs.</b> <b>Max. Marks: 100</b>	
<b>Instructions:</b> <i>Please attempt according to the provided time and given weightage.  Start Answering on the new page and mention the question number clearly on the left margin.  Explain each package, function, and method at their first use.</i>			
S. No.		Marks	CO
Q 1	Explain <b>for</b> and <b>while</b> loops in Python. Also, explain the need for a <b>break</b> in the while loop.	4	CO1
Q 2	Discuss <b>Index Out of Range</b> Error. <b>OR</b> Explain <b>interning</b> in Python for integers.	4	CO5
Q 3	Explain the need for <b>deepcopy</b> and write a program to deep copy an python list.	4	CO2
Q 4	Differentiate between the class attributes and class methods.	4	CO2
Q 5	Explain the use of the following: <b>is</b> , <b>isinstance</b> , <b>type</b> , and <b>id</b> .	4	CO5
<b>SECTION B</b> <b>(4Qx10M= 40 Marks)</b>			
Q 6	Given a file named data.txt, write code to read its contents and print the lines that contain the word "error" (case-insensitive search).	10	CO3, CO2
Q 7	Explain wrapper functions and decorators in Python, and explain with an example to get the execution time of some code block or function call.	10	CO2
Q 8	Explain pandas series and dataframe. Write a program to create a pandas series and a dataframe. Also save this data frame in to an excel file.	10	CO1
<b>OR</b>			

	Explain the use of os and tkinter in Python with 10 examples of functions.		
Q 9	Write a regular expression to select valid 10-digit mobile numbers, then using the Python re module read file content and print the list of mobile numbers present in the text file.	10	CO2
<b>Q 1SECTION-C (2Qx20M=40 Marks)</b>			
Q 10	<p>Explain the principles of Object-Oriented Programming (OOP) in Python. Provide an example code that demonstrates inheritance and polymorphism.</p> <p>Explain the purpose of try-except blocks in Python. Explain the use of assert in Python programs.</p> <p style="text-align: center;"><b>OR</b></p> <p>Using NumPy and Matplotlib, perform the following tasks:</p> <ol style="list-style-type: none"> <li>Create a 2D NumPy array of shape (5, 5) with random integers between 0 and 100.</li> <li>Explain Broadcasting and element-by-element operations on numpy array.</li> <li>Calculate <math>Y = 2 * \pi * f * T</math>, when <math>f = 10</math> and <math>\pi = 3.14</math>, T is an array of Time steps from 1sec to 3600sec containing 1 sample every 10 sec.</li> <li>Plot Y vs X, add a suitable title, name for each axis and show gridlines, and save generated plot in a PNG file.</li> </ol>	20	CO5, CO3
Q 11	<p>Write a Python script that downloads an image from a URL and saves it in a specified directory. Then, create a simple GUI to take the URL and directory path as input. Include steps to package this program into an executable using pyinstaller.</p> <p style="text-align: center;"><b>OR</b></p> <p>Write a GUI Program to organize files into different categories taking directory location from the user. Explain the steps to convert/compile this program into a distributable/executable file.</p>	20	CO1, CO3