Enrollment No.: _____

Darshan UNIVERSITY
योगः कर्मसु कौशलम्

Darshan Institute of Engineering & Technology
B.Tech. | Sem-4 | Summer-2024

Course Code	:	2101CS405	**Date**	:	10-04-2024
Course Name	:	Python Programming	**Duration**	:	150 Minutes
			Total Marks	:	70

Instructions:
1. Attempt all the questions.
2. Figures to the right indicates maximum marks.
3. Make suitable assumptions wherever necessary.

Q.1	**(A)**	What is a magic command? List the available magic command with their use.	**4**
	(B)	Differentiate List and Tuple.	**3**
		OR	
		Explain List Comprehension with an example.	
	(C)	Explain features of python programming language.	**7**
		OR	
		What is List slicing? Explain append(), insert(), extend(), pop(), count(), sort() and reverse() methods with Example.	
Q.2	**(A)**	Write a python program to define a function called primes that takes an integer value as an argument and returns a list of all prime numbers up to that number.	**4**
	(B)	Explain tuple unpacking with an example.	**3**
		OR	
		Explain for loop with else statement with example.	
	(C)	What is Lambda function? Explain it with an example.	**7**
		OR	
		Explain map, filter and reduce with example.	
Q.3	**(A)**	Write a python program to replace all “word1” by “word2” from a file1, and output is written to file2 file and display the no. of replacement.	**4**
	(B)	Explain else statement with try and except with example.	**3**
		OR	
		Explain file opening mode with an example.	
	(C)	What is user defining Exception? Create InvalidMonthException which is generated when the user enters the month not in between 1 to 12.	**7**
		OR	
		Explain TypeError, ValueError, AssertionError, KeyError, NameError, IndexError and AttributeError with example.	

Q.4 **(A)** Write a Python program to perform the following task using the datetime module: **4**

1) print current date and time.
2) add five days to the current date.
3) print yesterday, today, tomorrow.
4) convert a string to a datetime object.

(B) Explain seed(), randint() and shuffle() functions of random module. **3**

OR

Explain strptime() with an example.

(C) Consider a dataset containing the scores of 100 students in a class. The scores range from 0 to 100. Write a Python program using matplotlib to create a histogram and boxplot. Follow these steps: **7**

1) Generate a random dataset of 100 scores using a random module.
2) Create a histogram with 10 bins to represent the distribution of scores.
3) Create a box plot to visualize the distribution of scores.

OR

Write a Python program to display a bar chart of sales performance of five products (A, B, C, D, and E) over a certain period. Attach a text label above each bar displaying its sales.
Sample data:
Product data: A, B, C, D, E
sales: 500, 700, 400, 900, 600

Q.5 **(A)** Define ComplexNumber class with real and imag as a data member. Also define the addition method with a signature like [addComplexNumber(self, c1, c2)] to add two objects. **4**

(B) Differentiate class attribute and instance attribute **3**

OR

Explain the use of self parameter with an example.

(C) Explain instance, class and static methods with example. **7**

OR

What is Polymorphism? Explain method overriding with an example.

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