RAMAIAH Institute of Technology

Department of Computer Science & Engineering

Practical Examination (July/Sept 2025)

Subject Code: CSL48 **TERM: 03.03.2025– 21.06.2025**

Subject Name: Data Visualization with Python Lab **Credits:** 0:0:1

SEMESTER : IV

SL. No.	QUESTIONS	CO	PO
1.	a. Write a Python program to check whether a given number is even or odd. b. Write a Python program to calculate the factorial of a number using recursion.	1,2,3	2,3,5
	a. Write a Python program to find the largest of three numbers using if-else statements. b.Write a Python program to print the multiplication table of a given number.	1,2,3	2,3,5
2.	a. Write a Python program using a lambda function to find the product of two numbers. b. Write a Python program using a lambda function to sort a list of tuples based on the second element.	1,2,3	1,2,3,5
	a. Write a Python program where a function returns a lambda function that multiplies a number by a given factor. b. Write a Python function that takes two numbers as arguments and returns their sum.	1,2,3	2,3,5
3.	a. Write a Python program demonstrating encapsulation using a class Bank Account with private attributes __balance and methods to deposit and withdraw money.	1,2,3	2,3,5
	b. Write a Python program that uses operator overloading to add two Vector objects using the + operator.	1,2,3	1,2,3,5
4.	a. Write a Python class that implements an iterator to return even numbers up to a given limit.	1,2,3	2,3,5
	b. Write a Python program that demonstrates the use of the iter() function on a list and manually retrieves elements using the next() function until a Stop Iteration exception is encountered.	1,2,3	1,2,3,5
5.	a. Write a Python program that prints the current working directory, lists files in a directory, and prints the Python version using the os and sys modules.	1,2,3	2,3,5
	b. Write a Python program that uses the math module to compute the square root, factorial, and greatest common divisor (GCD) of given numbers.	1,2,3	2,3,5
6.	a. 1.Write a Python program to create a NumPy array of 5 zeros and another array of 5 ones. b.Write a Python program to create a NumPy array with values between 1 and 10, spaced by 0.5.	1,2,3	1,2,3,5

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	a. Write a Python program to compute the mean, median, and standard deviation of a NumPy array. b.Write a Python program to find unique elements in a NumPy array.		1,2,3,5
7.	a. Create a Pandas Data Frame from a Dictionary Write a Python program to create a Data Frame using a dictionary. The dictionary should contain passenger details such as name, age, and fare. Then, display the created Data Frame.	1,2,3	2,3,5
	b. Write a Python program to perform the following operations using the Titanic dataset: Dataset link: titanic.csv 1. Read the Titanic dataset from a CSV file (titanic.csv) into a Pandas Data Frame and display the first few rows. 2. Filter the dataset to select only the rows where the passenger's age is greater than 30, and display the filtered results. 3. Replace missing values in the age column with a default value (e.g., 30) and display the updated Data Frame. 4. Remove any rows containing missing values from the dataset and display the cleaned Data Frame. 5. Determine and display the maximum and minimum values in the age column.	1,2,3	1,2,3,5
8.	Write a Python program to perform the following operations using the Chiptole dataset: Dataset link: chipotle.csv 1. Determine the number of unique orders using the `order_id` column. 2. Calculate the average revenue per order. 3. Find out how many different items are sold (unique values in `item_name`). a. List the top 5 items by total quantity sold. 4. Count the number of unique values in the `choice_description` column. 5. Identify the order with the highest total bill amount. 6. Find all items that have inconsistent pricing (same `item_name` but different `item_price` values). 7. List orders where any single item was ordered in a quantity greater than 5. 8. Calculate the average price of an item. 9. List all unique item prices and show the items associated with each price. 10. Display all orders that included *Canned Soda*.	1,2,3	1,2,3,5
9.	Write a Python program to perform the following operations using the Employee dataset:	1,2,3	1,2,3,5

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	Data link: Employee.csv 1. Rank employees based on their salary within their department. 2. Which JoiningYear has the most employees still in the company? 3. Find employees who are above 50 years old and still working. 4. Compute average salary increase trend (assuming salary grows by 5% annually since joining). 5. Create bins of Age and find average salary for each bin. 6. Create a pivot table showing total number of employees by JoiningYear and Department. 7. Identify if remote work is more common in a specific department. 8. Find standard deviation of salaries for each department. 9. Plot a histogram of Performance Score for male employees. 10. How does Work Hours PerWeek affect the chance of leaving the company? Find top 5 highest earning employees in each department.		
10	a. Write a Python program that demonstrates the use of the iter() function on a list and manually retrieves elements using the next() function until a Stop Iteration exception is encountered.	1,2,3	1,2,3,5
	b. Write a Python program to search for and extract all phone numbers from a given block of text. Assume phone numbers can be in formats like (123) 456-7890 or 123-456-7890.	1,2,33	1,2,3,5

Note:

- **Student is required to solve one program from PART-A and one program from PART-B. The questions are allotted based on lots.**

Marks Distribution:

CIE-PART A-5M
PART B-5M

Note: If the section has only one question, complete 10M to be evaluated.
CHANGE OF PROGRAM:5M

SEE

Conduction and Result	Write-Up	Execution	Viva/Demo	Change of Program	Total
Part – a	**3**	**15**	**7**	**-8 Marks**	**50 Marks**
Part – b	**5**	**20**			