Ramaiah Institute of Technology
Department of Information Science and Engineering

Course Code: ISL57 & Scripting Languages Laboratory

<u>**Instructions to Candidates**</u>

1. Student is expected to pick one chit and execute the program
2. Mark split-up is as follows:

	Part-A	Part-B
Write-up	2	6
Execution	15	20
Viva	3	4
Total	20	30

3. In case student needs Change of Question, the exam must be evaluated for 40 marks.

Questions

1	A	Write Python code to do the following: i. Create list with inputs from user ii. Determine minimum and maximum elements in the list iii. Insert new element into the list iv. Delete an element from the list v. Determine if an element is present in the list.
	B	**Introduction to Python:** Write Python programs to do the following: **a.** Read a list of elements. Create a new list having all the elements minus the duplicates (Use functions). Use one-line comprehensions to create a new list of even numbers. Create another list reversing the elements. **b.** Write a python program to count the frequency of words in a given file. **c.** Read a list of numbers. Uses a recursive function to find the maximum of 'n' numbers.
2	A	Write a python program to create a class 'Rectangle'. This class should include a constructor to initialize the dimensions. Include a function in the class to compute the area of the rectangle. Create objects of the class and print area.
	B	**Introduction to JavaScript (JS):** Dynamically loading JSON data - Implement a HTML+JS application that has a JSON Array with details of different kinds of data. <u>Example</u>: Model, Name, Price, Year. Display details of each vehicle dynamically by only showing details of the vehicle that the user has selected (via mouse-over).
3	A	(i) Create a dictionary that contains the atomic element symbol and its name. (ii)Add a unique & duplicate element into this dictionary by interacting with the user. Observe the output and justify it. (iii) Display the number of atomic elements in this dictionary (iv) Ask the user to enter an element to search in the dictionary. Display appropriate results. Rewrite this program so that these operations are inside a function called 'AtomicDictionary'. Create another python file called "Atomic.py" and execute this function in it.
	B	**JavaScript – Client Side Validation:** Design Bakery Menu & Price calculation of items bought case study that creates and validates a HTML form at the client side using Javascript.

4	A	Create a Python class called 'Student' having 'name', 'age' as attribute along with a list having the marks obtained for three subjects. (i) Create a constructor to initialize two objects of this class. (ii) Create a member function called 'display' printing the details of a specific object (iii) Ask users to enter the values for an object through an 'accept' member function. (iv) Display these details.

	B	a)Load the Titanic dataset into one of the data structures (NumPy or Pandas).
		b)Display header rows and description of the loaded dataset.
		c) Remove unnecessary features (E.g. drop unwanted columns) from the dataset.
		d) Manipulate data by replacing empty column values with a default value.
		e) Perform the following visualizations on the loaded dataset:
		    i) Passenger status (Survived/Died) against Passenger Class
		    ii) Survival rate of male vs female
		    iii) No of passengers in each age group

5	A	Create a list of 6 numbers. Use 'list-comprehension' to create a new list where each element in the original list is multiplied by 3. Use 'lambda' and 'reduce' function to find the sum of the elements of the original list as well as the new list.
	B	**Python File Handling & List Comprehension**: Write a python program to read contents of a file (filename as argument) and store the number of occurrences of each word in a dictionary. Display the top 10 words with the most number of occurrences in descending order. Store the length of each of these words in a list and display the list. Write a one-line reduce function to get the average length and one-line list comprehension to display squares of all odd numbers and display both.

6	A	Create a form to get customer feedback. Following features to be present in the form
		    • Text box to get customer name and display on the same page.
		    • Radio button to get gender and display on the same page.
		    • Text area to get feedback and display on the same page.

	B	a)Load the 'Black Friday' dataset into one of the data structures (NumPy or Pandas).
		b)Display header rows and description of the loaded dataset.
		c) Remove unnecessary features (E.g. drop unwanted columns) from the dataset such as 'User_ID', 'Product_ID ' 'Stay_In_Current_City_Years' .
		d) Manipulate data by replacing empty column values in 'City_Category' with a default value for the city.
		e) Perform the following visualizations on the loaded dataset:
		    i) Tally of the Number of Male & Female persons who bought 'Product_Category_1' and 'Product_Category_2'.
		    ii) Total Number of Male & Female persons belonging to each city category

7	A	Create a HTML form to accept a number. Include a button to check whether the input is divisible by 3 or 7. Display the result. Ensure the data entered in the text box is a number only. Use Javascript for this client side scripting. Display appropriate error texts. Also show the execution when the javascript code is in a different file.
	B	**Introduction to Python Functions:** Write a temperature converter python program, which is menu driven. Each such conversion logic should be defined in separate functions. The program should call the respective function based on the user's requirement. The program should run as long as the user wishes so. Provide an option to view the conversions stored as a list of tuples with attributes - from unit value, to unit value sorted by the user's choice (from-value or to-value).
8	A	Create a HTML form to simulate a simple calculator. The arithmetic operations are to be displayed as radio buttons. Enter two numbers in two text boxes. Show the result. Handle the error case of 'divide by zero'. Also show the execution of this code with the javascript code as a ".js" file outside the HTML
	B	**Python Classes:** Write a python class to reverse a sentence (initialized via constructor) word by word. <u>Example</u>: "I am here" should be reversed as "here am I". Create instances of this class for each of the three strings input by the user and display the reversed string for each, in descending order of the number of vowels in the string.
9	A	Create a HTML form which contains one text area. Enter a sentence. Find the length of the longest word of that sentence using javascript. Also show the execution of this code with the javascript code as a ".js" file outside the HTML.
	B	a)Load the Iris dataset into one of the data structures (NumPy or Pandas). b) Display header rows and description of the loaded dataset. c) Remove unnecessary features from the dataset

		d) Find the average petal width of each category of IRIS Species **e)** Data Visualization for: **(i)** How many flowers of each species exists for each value of sepal width **(ii)** How many flowers are there whose petal width is <1, between 1 to 2 and >2 **(iii)** Tally the Iris-Versicolour and Iris-Virginica species according to the value of Sepal Width
10	A	Create a HTML to perform Currency conversion from • USD and Rupee and vice versa • Euro to Rupee and vice versa
	B	**a)** Load the 'Student Performance' dataset into one of the data structures (NumPy or Pandas). **b)** Display header rows and description of the loaded dataset. **c)** Remove unnecessary features (E.g. drop unwanted columns) from the dataset such as 'lunch' and 'test preparation course' . **d)** Manipulate data by replacing empty column values in 'parental level of education' with a default value. **e)** Perform the following visualizations on the loaded dataset: **i)** Tally of the Number of Male & Female students who took up the 'test preparation course' and those who did not. **ii)** Total Number of Male & Female Students belonging to each student group **iii)** No of students who 'failed'(less than 40), 'second class'(between 40 & 50). 'first class'(between 60 & 75) and 'distinction'(above 75) in 'Maths', 'Reading' and 'Writing'.