List of Assignment of Python Lab
Paper Code: PCC CS393

1. Use string slicing to perform the following:
   a. Take a string of length greater than 2, return a string except 1st and last characters.
   b. Take 2 strings, s1, and s2 return a new string made of the first, middle and last char of each input string.
   c. Write a python program to take 2 strings, s1 and s2, create a new string by appending s2 in the middle of s1.

2. Write a program to take a year as input and check If it is a leap year or not.

3. Write a python program to find mean and median of a set of elements.

4. A store charges Rs.120 per item if you buy less than 10 items. If you buy between10 and 99 items, the cost is Rs.100 per item. If you buy1000 or more items, the cost is Rs.70 per item. Write a program that asks the user how many items they are buying and prints the total cost.

5. Write a python program to find all occurrences of “India” in given string ignoring the case.
6. Write a python program to find the last position of a substring “Emma” in a given string.
7. Write a program to input 3 sides of a triangle and print whether it is an equilateral, scalene or isosceles triangle.
8. Write a short program to input a digit and print it in words.
9. Write a python program to take an input list and removes the element at index 4 and add it to the 2nd position and also, at the end of the list.
10. Write a Python program to print every integer between 1 and n divisible by m. Also report whether the number that is divisible by m is even or odd.
11. Write a python program to find out the palindromic prime numbers between a range.
12. Write a python program to find the Twins primes between a range(Twin primes are pairs of prime numbers that have just one number between them: 5 and 7, 11 and 13,and 29 and 31).
13. Write a python program to reduce a string of lowercase characters in range ascii [‘a’..’z’] by doing a series of operations. In each operation, select a pair of adjacent letters that match, and delete them. Delete as many characters as possible

using this method and return the resulting string. If the final string is empty, return Empty String.
Input-aaabccddd, output-abd,
Input- abba output-empty string.

14. Write a program to take N (N > 20) as an input from the user. Print numbers from 11 to N. When the number N is a multiple of 3, print "Tipsy", when it is a multiple of 7, print "Topsy". When it is a multiple of both, print "TipsyTopsy

15. Write a Python program that accepts a hyphen-separated sequence of words as input and prints the words in a hyphen-separated sequence after sorting them alphabetically.
    Sample Input : green-red-yellow-black-white
    Output : black-green-red-white-yellow

16. Write a Python function to check whether a string is a pangram or not. Pangrams are words or sentences containing every letter of the alphabet at least once.
    For example : “The quick brown fox jumps over the lazy dog”
17. Write a Python function that takes a list and returns a new list with unique elements of the first list.
    Sample List : [1,2,3,3,3,3,4,5]
    Unique List : [1, 2, 3, 4, 5]
18. Write a Python function that accepts a string and calculate the number of upper case letters and lower case letters. Sample String : ‘The quick Brow Fox’
    Expected Output :
    No. Of Upper case characters : 3
    No. Of Lower case Characters : 12
19. Write a Python Program to print the Prime Factors of an Integer.
20. Given a list of integers, write a program to find those which are palindromes.
21. Print the following pattern using Python program
    1
    2 1
    4 2 1
    8 4 2 1
    16 8 4 2 1
    32 16 8 4 2 1
    64 32 16 8 4 2 1
22. Write Python programs to sum the given sequences up to n terms: 2/9 - 5/13 + 8/17 .....
23. Write a python program to convert a decimal number to a number of a given base b.
24. The set of input is given as ages. Then print the status according to the rules using python program.
    Age Status
    <2 in born
    2-10 child

11-17 young
18-49 adult
50-79 old
>80 very old

28. Write a Python program to sum the sequence: 1 + 1/1! + 1/2! + 1/3! + ... + 1/n! (Input n through keyboard)
25. Write a program to accept the age of n employees and count the number of persons in the following age group: (i) 26 - 35 (ii) 36 - 45 (iii) 46 – 55
26. Write programs to find the sum of the following series: x - x^2 /2! + x^3 /3! - x^4 /4! + x^5 /5! - x^6 /6! (Input x)
27. Write a Python program using a function to check whether a given number is an ugly number. In number system, ugly numbers are positive numbers whose only prime factors are 2, 3 or 5. First 10 ugly numbers are 1, 2, 3, 4, 5, 6, 8, 9, 10, 12. By convention, 1 is included.
28. Write programs using nested loops to produce the following patterns:
A
A B
A B C
A B C D
A B C D E
A B C D E F
29. write a program to input a list of numbers and test if a number is equal to the sum of the cubes of its digits. Print that new list and find the smallest and greatest element of that list.
30. Write a short program to find the average of some numbers entered through the keyboard.
Output
Enter numbers (Enter 'q' to see the average)
2 5 7 15 12 q
Average = 8.2
31. Python program to capitalize the first and last character of each word in a string
Input: hello world
Output: HellO WorlD
35. Python program to check if a string has at least one letter and one number
Examples:
Input: welcome2ourcountry34
Output: True
Input: stringwithoutnum
Output: False
36. Remove all duplicates characters from a given string in Python
Examples:
Input : abcabcde
Output : abcde
37. Python program to check if a given string is binary string or not
Examples:
Input: str = "01010101010"
Output: Yes
38. Write a Python program using function check whether a number is an Automorphic Number or not. In mathematics, an automorphic number is a number whose square "ends" in the same digits as the number itself. For example, 5 = 25, 6 = 36, 76 = 5776, and 890625 = 793212890625, so 5, 6, 76 and 890625 are all automorphic numbers.

40. Write a program to calculate the amount payable after simple and compound interest.

39. Say a box of cookies can hold 24 cookies, and a container can hold 75 boxes of cookies. Write a program that prompts the user to enter the total number of cookies, then outputs the number of boxes and the number of containers to ship the cookies. Note that each box must contain the specified number of cookies, and each container must contain the specified number of boxes. If the last box of cookies contains less than the number of specified cookies, you can discard it and output the number of leftover cookies. Similarly, if the last container contains less than the number of specified boxes, you can discard it and output the number of leftover boxes.

40. Write a program to convert centigrade to Fahrenheit and reverse also.

41. Write a Python script to enter length and breadth of a rectangle and radius of a circle. Find perimeter and area of rectangle and circumference and area of circle.

42. Write a Python script to find all roots of a quadratic equation for all possible combination of a, b and c.
A quadratic equation will have two roots which are obtained using the following expression
where is called discriminate.

43. Write a Python script to find HCF (GCD) and LCM of two numbers.

44. Write a Python script to check whether a number is Prime number or not.

45. Write a Python script to print all Prime numbers between 1 to n.

46. Write a Python script to check whether a number is Armstrong number or not.

47. Write a Python script to check whether a number is Perfect number or not.

48. Write a Python script to print Fibonacci series up to n terms.

49. Write a Python script to find value of following series:

where is user input.

50. Write a Python script for following…
An electric distribution companies arranges its domestic consumer as follows:

Consumption in Units	Rate of charge
0 – 200	Rs. 0.50 per unit
201 – 400	Rs. 100 plus Rs. 0.65 per unit excess to 200
400 – 600	Rs. 250 plus Rs. 0.80 per unit excess to 400
Above 600	Rs. 425 plus Rs. 1.25 per unit excess to 600

Print the amount to be paid by consumer.

51. Write a Python script to create Simple Calculator on user choice.

52. A student's grade is calculated in a subject according to the following rules:

Number Obtained	Grade

>=90 and <=100	O
>=80 and <90	E
>=70 and <80	A
>=60 and <70	B
>=50 and <60	C
>=40 and <50	D
<40 and >=0	F(FAILED)
Others No.	INVALID

Write a Python script which accept a student's marks as an input and then determine the grade of the students in that subject. Do this program using 'if-else-if' statement.

53. Create the following lists using a for loop:
The list ['a','bb','ccc','dddd', . . .] that ends with 26 copies of the letter z.
54. Write a program that takes any two lists L and M of the same size and adds their elements together to form a new list N whose elements are sums of the corresponding elements in L and M. For instance, if L = [3, 1, 4] and M = [1, 5, 9], then N should equal [4,6,13].
55. Write programs as per following specifications: "Print the length of the longest string in the list of strings str_list. Precondition : the list will contain at least one element."
56. Write a program to display the maximum and minimum values from the specified range of indexes of list.
57. Write a program to move all duplicate values in a list to the end of the list.
58. Write a program to compare two equal sized lists and print the first index where they differ.
59. Write a program to reverse a list without using another list or in-built function.

60. Input two 3X3 Matrixes. Now perform

a. the addition of two 3X3 Matrixes.

b. perform the elements-wise multiplication of two 3X3 Matrixes.

c. perform the Matrix Multiplication of two 3X3 Matrixes.

61. Write a python program to create an 3X3 Matrix randomly and calculate sum of the diagonal elements.

62. Read a text file which contents monthly electricity bills of different customer. print he electricity consumption for july and November month

63. Read two matrix and add them. Store the matrices and result in a file.

64. Take the five marks of a student for a particular subject. Display the data graphically using suitable graph.

65. Election results of india for the year 2000 is published. Out of 400 seats ‘ABC’ got 180, ‘XYZ’ got 200 and ‘MNP’ got rest. Display the result using suitable graphical tools.

66. Display electricity consumption of a customer for 12 months using suitable graphical tools.

67. Plot the curve O(n) and O(n^2).

68. Display the marks of two students for 5 subjects using suitable graphical tools.