Roll No. | | | | | | | | | | |

ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

B.E. / B. Tech / B. Arch (Full Time) - END SEMESTER EXAMINATIONS, MARCH/APRIL 2023

Common to All Branches
First Semester
GE5153 & Problem Solving and Python Programming
(Regulation 2019)

Time: 3hrs | Max.Marks: 100

CO 1	To Know the basics of algorithmic problem solving
CO 2	To develop Python programs with conditionals and loops
CO 3	To define Python functions and use function calls
CO 4	To use Python data structures – lists, tuples , dictionaries
CO 5	To do input/output with files in Python

BL – Bloom's Taxonomy Levels
(L1 - Remembering, L2 - Understanding, L3 - Applying, L4 - Analyzing, L5 - Evaluating, L6 - Creating)

PART- A (10 x 2 = 20 Marks)
(Answer all Questions)

Q. No	Questions	Marks	CO	BL
1	Write any two rules for naming the identifiers in python	**2**	1	L1
2	What is the output of the following print statements in python? a = 15 + 6 * 4 ** 3 // 5 +3 % 2 print(a)	**2 (1+1)**	1	L3
3	Write any two differences between for and while loop	**2(1+1)**	2	L4
4	Write a function to find the greatest of two numbers Using this function, find the greatest of 3 numbers	**2**	3	L3
5	l = [10, 6, 7, 12, 8] l.pop() print(l)	**2**	4	L4
6	What is the output? a,b=(10//3,10%3) print(a+1,b+2)	**2**	4	L3
7	What is the output? S1={ i for i in range (5,20,2)} , S2 = { j for j in range (10,25)} print(S1^S2)	**2**	4	L3
8	What is the output? d={1:1,1.5:2, 2:3, 2.0:4, 5:5} d[3]=6 d[5]=2 print(d)	**2**	3	L5
9	What are the writing modes in file	**2**	5	L1
10	Differentiate error and exception with an example	**2**	5	L6

PART- B (5 x 13 = 65 Marks)

Q. No	Questions	Marks	CO	BL
11 (a) (i)	Describe the organization of a General Purpose Computer with neat sketch	**7**	1	L1
(ii)	Draw flow chart to find the roots of quadratic equation.	**6**	1	L3
	OR			
11 (b) (i)	List the various types of operators in python and explain each with example	**7**	1	L1
(ii)	Write an algorithm to reduce a given number of arbitrary length to a single digit, by repeatedly summing its digits. E.g: for an input 148, display 4 (1+4+8=13, 1+3=4)	**6**	1	L3
12 (a) (i)	With suitable programs, demonstrate how the functions are being called by passing or not passing parameter(s) which may or may not return values.	**8**	2	L3
(ii)	Get a point as x & y in xy plane & display its standard quadrant	**5**	2	L6
	OR			
12 (b) (i)	Write a function to return a factorial of a number. Using this function write a program to find the value of the following for the given n and r: nCr = (n-r)! ÷ (n! x r!)	**8**	2	L3
(ii)	Write a Python program to print the following pattern up to a given limit . Example if the size is 5 1 1 2 1 2 3 1 2 3 4 1 2 3 4 5 1 2 3 4 1 2 3 1 2 1	**5**	2	L6
13 (a) (i)	Describe map, reduce and filter with example.	**7**	3	L3
(ii)	Consider a tuple of temperatures in Celsius as (32, 33.4, 34.5, 37, 36.8). Create a list of temperatures in Fahrenheit using "***map***" function from this tuple.	**6**	3	L2
	OR			
13 (b) (i)	Illustrate union, intersection and difference operations on set with example	**7**	3	L3
(ii)	Write a function to return next Fibonacci number. Using this function, create a list of Fibonacci numbers up to a given limit. E.g: If the limit is 20 then the list is [0,1,1,2,3,5,8,13]	**6**	3	L2
14 (a) (i)	Write a python program to check whether a given subject code is valid or not.(first two characters must be alphabet, next 4 must be integers, overall 6 in length. E.g 'GE5153' is valid GEX929 is invalid)	**7**	4	L1
(ii)	Write any four string functions with examples	**6**	4	L3
	OR			
14 (b) (i)	Write different ways in which dictionaries are created? Describe methods that can be performed on dictionaries	**7**	4	L1
(ii)	Consider two dictionaries of marks in 4 subjects	**6**	4	L3

15 (a) (i)	Explain the file operations, open, close, reading & writing the files with various modes with example	**8**	5	L2
(ii)	Consider a text file 'bank.txt', where in each line contains, account number, and amount. Write a python program to get account number, amount and type of transaction as deposit or withdrawal and accordingly add or subtract the amount, and show the balance.	**5**	5	L6
	OR			
15 (b) (i)	Explain different Python exception handling constructs with suitable examples	**8**	5	L2
(ii)	Write a python program to handle "divide by zero" & 'value error' exception.	**5**	5	L6

PART- C (1 x 15 = 15 Marks)

(Q.No.16 is compulsory)

Q. No	Questions	Marks	CO	BL
16.	i) Develop a python program for the given two matrices A and B computes (A x B) + B by implementing proper dimensional checks and show the resultant matrix. Note that '+' and 'x' represent matrix addition and multiplication, respectively	**10**	3	L5
	ii) Write Python program to generate Fibonacci series using dictionary, upto the given number. Ex. If the input is 10, display 0, 1, 1, 2, 3, 5, 8	**5**	4	L3

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