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

ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

B.E. (Full Time) - END SEMESTER EXAMINATIONS, APR / MAY 2024

BIOMEDICAL ENGINEERING

II

BM3201 & PROBLEM SOLVING AND PYTHON PROGRAMMING

(Regulation 2023)

Time:3hrs | Max.Marks: 100

CO1	Develop algorithmic solutions to simple computational problems.
CO2	Develop and execute simple Python programs using conditionals and loops.
CO3	Use Lists, tuples, dictionaries and functions for developing Python programs.
CO4	Work with strings and modules in Python.
CO5	Read and write data from/to files in Python programs.
CO6	Develop a software application using Python constructs.

BL – Bloom's Taxonomy Levels

(L1-Remembering, L2-Understanding, L3-Applying, L4-Analysing, L5-Evaluating, L6-Creating)

PART- A (10x2=20Marks)

(Answer all Questions)

Q. No.	Questions	Marks	CO	BL
1	Differentiate between compiler and interpreter.	2	1	2
2	Evaluate the following expressions in python: 24//6%3 .	2	1	4

3	Find the output for the following code:
	for i in range(10):
	if not i%2==0:
	print(i+1)
		2	2	5

4	Highlight the use of break statement with an example.	2	2	1
5	What is difference between list and tuple in python?	2	3	2
6	Give a function that can take a value and return the first key mapping to that value in a dictionary.	2	3	1
7	Define recursion with an example.	2	4	1
8	Illustrate the use of " * " and "+" in strings with an example.	2	4	2
9	Distinguish between files and modules.	2	5	2
10	Write a python program that counts the number of words in a file.	2	5	3

PART- B (5x 13=65Marks)

(Restrict to a maximum of 2 subdivisions)

Q. No.	Questions	Marks	CO	BL
11 (a)(i)	Briefly describe the various types of operators in phyton with necessary examples.	6	1	1
(ii)	Draw the flowchart and write the python code to accept a 5 digit integer as input and generate a 2 digit integer by repeatedly summing the individual digits of the 5 digit input integer. (Example: Input = 99999 & Output = 45).	7	1	3
	OR			
11 (b) (i)	Draw the flowchart and write the algorithm and python code to read the address of a user, and display the result by breaking into multiple lines.	7	1	3

(ii)	Draw the flowchart and write the python program for swapping two numbers without using temporary storage.	**6**	1	3
12 (a)	Consider the stand four quadrant system. Based on the input from the user(x,y) , write a phyton program with the necessary algorithm and flowchart to identify the respective quadrant of the user defined point (x,y).	**13**	2	3
	OR			
12 (b)	Draw the flowchart and write the algorithm and Python program to print the following Pattern: A B B C C C D D D D E E E E E	**13**	2	3
13 (a)(i)	Write a python program to rotate a list by right n times with and without slicing technique.	**7**	3	3
(ii)	Write a python program print the maximum among 'n' randomly generate 'd' numbers by storing them in a list.	**6**	3	3
	OR			
13 (b)(i)	Appraise the operations for dynamically manipulating dictionaries. Substantiate with necessary examples.	**13**	3	2
14 (a)	Draw the flowchart and write the algorithm and Python program to check if the input IFSC code is valid or not for banking applications. (Conditions: First 4 elements must be alphabets, next 3 elements must be zeros and last 4 elements need to be non-zero numbers, total string length must be 11)	**13**	4	3
	OR			
14 (b)(i)	What are modules in python? How will you import them? Explain the concept by creating and importing a module.	**7**	4	1
(ii)	Briefly describe any four string operations with valid examples.	**6**	4	2
15 (a)	Describe how exceptions are handled in python with necessary examples.	**13**	5	2
	OR			
15 (b) (i)	Draw the flowchart and write the python code to print all numbers present in the text file and also print the number of block spaces in that file.	**7**	5	3
(ii)	How to merge multiple files in to a new using python?	**6**	5	2

PART- C (1x 15=15Marks)

(Q.No.16 is compulsory)

Q. No.	Questions	Marks	CO	BL
16. (i)	Write a function find index (), which returns the index of a number in the Fibonacci sequence, if the number is an element of this sequence. It should also generate an error message if the number is not contained in it, call this function using user input.	**8**	4	6
(ii)	Write Pythonic code to create a function called most_frequent that takes a string and prints the letters in decreasing order of frequency using dictionaries.	**7**	3	6