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School of Computing Science and Engineering**Master of Computer Applications
Mid Term Examination - Nov 2023****Duration : 90 Minutes
Max Marks : 50****Sem I - E1PA103B - Problem Solving and Computer Programming***General Instructions**Answer to the specific question asked**Draw neat, labelled diagrams wherever necessary**Approved data hand books are allowed subject to verification by the Invigilator*

- 1) Do Python tuples and set allow for the modification of their elements after creation? K2 (2)
- 2) Write a Python program that uses a for loop to find and display the sum of all even numbers from 1 to 100 (inclusive). K1 (3)
- 3) Write a Python program that takes a user's input string and performs the following tasks: 1. Count the number of characters (including spaces) in the string. 2. Count the number of words in the string. 3. Display the input string in reverse order. K2 (4)
- 4) Write a Python program to find the sum of the first n natural numbers. Your program should take an integer 'n' as input and output the sum of the first 'n' natural numbers. K2 (6)
- 5) Write a program that takes a sentence as input from the user and computes the frequency of each letter. Use a variable of dictionary type to maintain the count. K3 (6)
- 6) Explain the concept of Python lists, including how to access values in lists, update list elements, and delete list elements, and provide a program to demonstrate these operations. K3 (9)
- 7) Mention the different types of iterative structures allowed in Python. Explain the use of continue and break statements with an example. K4 (8)
- 8) Briefly describe iteration and recursion. Explain with an algorithm. Also, write an algorithm and draw a flowchart to calculate the net salary of an employee. K4 (12)

OR

"Explain and demonstrate the concept of type conversions in Python using the int(), float(), and str() functions. Provide three separate examples, each showcasing the conversion of data from one data type to another. In each example, include a detailed algorithm, Python code, and the expected output. Finally, discuss the practical significance of type conversions in programming." K4 (12)