Name: **Enrolment No:**	

UPES

End Semester Examination, May 2025

Course: Data Structure Biomedical Engineering — **Semester : II**

Program: Biomedical Engineering — **Duration : 3 Hours**

Course Code: HSBE1003_II — **Max. Marks: 100**

Instructions:

S. No.	Section A Short answer questions/ MCQ/T&F (20Qx1.5M= 30 Marks)	Marks	COs
Q 1	The format() method is used to read input from the user. → True/False	1.5	C01
Q 2	# is used to write a _____ in Python.	1.5	C01
Q 3	The _____ keyword is used to exit a loop prematurely.	1.5	C01
Q 4	The id() function returns the _____ of an object.	1.5	C01
Q 5	A _____ is a collection of unordered, unique elements.	1.5	C01
Q 6	Tuples can be modified after creation. → True/False	1.5	C01
Q 7	Sets allow duplicate elements. → True/False	1.5	C01
Q 8	('a', 'b', 'c') is an example of a _____.	1.5	C01
Q 9	Arrays can store multiple types of data in Python. → True/False	1.5	C01
Q 10	Arrays are more efficient than _____ for homogeneous data types.	1.5	C01
Q 11	A stack follows the FIFO principle. → True/False	1.5	C01
Q 12	The pop() operation removes an element from the top of a stack. → True/False	1.5	C01
Q 13	Queues allow insertion from one end and deletion from another. → True/False	1.5	C01
Q 14	Priority queues follow a LIFO structure. → True/False	1.5	C01

Q 15	**Queue follows the _____ principle.**	**1.5**	**C01**
Q 16	**The insert() operation in a queue happens at the _____.**	**1.5**	**C01**
Q 17	**A DataFrame in pandas can only have numeric data. → True/False**	**1.5**	**C01**
Q 18	**The core data structure of NumPy is the _____.**	**1.5**	**C01**
Q 19	**Pandas provides two main data structures: _____ and _____.**	**1.5**	**C01**
Q 20	**NumPy arrays are less efficient than Python lists. → True/False**	**1.5**	**C01**
	Section B (4Qx5M=20 Marks)		
Q 1	**Write a Python program using if-elif-else to classify a number as positive, negative, or zero. Explain the control flow.**	**5**	**CO2**
Q 2	**What is recursion? Write a simple recursive function program to calculate the factorial of a number.**	**5**	**CO2**
Q 3	**Define a queue and explain its basic operations.**	**5**	**CO2**
Q 4	**Explain about stack? Write its applications.**	**5**	**CO2**
	Section C (2Qx15M=30 Marks)		
Q 1	**Explain all Python-specific collections in detail with syntax, examples, and use cases: List, Tuple, Set, Dictionary.**	**15**	**CO3**
Q 2	**Create the NumPy array having marks of three subjects. Print how many rows and columns does it have? Find the average marks for each student and list them. Find the average marks for each subject.**	**15**	**CO4**
	Section D (2Qx10M=20 Marks)		
Q 1	**Convert step by step following infix expression to Prefix and Postfix: a+b*(c+d)/f+d*e**	**10**	**CO3**
Q 2	**Explain the differences between a Series and a Data Frame in Pandas, providing an example for each to support your explanation**	**10**	**CO4**