Name: **Enrolment No:**	UPES UNIVERSITY OF TOMORROW

UPES

End Semester Examination, May 2025

Course : In-memory Processing **Semester: VIII**
Program : B.Tech CSE All **Time : 03 hrs**
Course Code : CSBD4007P **Max. Marks: 100**

Calculator allowed: No
Instructions: Please attempt according to the time provided and given weightage.

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	Analyse the limitation of In-Memory Processing.	**4**	**1**
Q 2	Write down four key features of Hadoop Distributed File System (HDFS).	**4**	**1**
Q 3	Discuss four key features of Spark.	**4**	**2**
Q 4	Compare disk-based distributed computing architectures with in-memory distributed computing architectures.	**4**	**3**
Q 5	Write down four most important key characteristics of disk-based distributed computing architectures.	**4**	**4**

SECTION B
(4Qx10M= 40 Marks)

Q6	Draw the diagram of HDFS architecture. Write down the key details of batch processing.	**5+5**	**1**
Q7	Explain the architecture of Apache Spark. Discuss its advantages over traditional disk-based distributed computing frameworks.	**5+5**	**2**
Q8	Draw the architecture of MapReduce and explain its key components.	**5+5**	**3**
Q9	Draw a diagram to show the differences between batch processing and stream processing. Describe two key challenges in real-time data processing. OR Define what a Directed Acyclic Graph (DAG) is in the context of distributed computing. State the significance of a DAG in fault tolerance.	**5+5** **5+5**	**4**

SECTION C (2Qx20M=40 Marks)			
Q 10	Draw a diagram to show differences between traditional approach vs in-memory approaches. Describe two fundamentals pillar of in-memory computing.	**10+10**	**3**
Q 11	List the names of five key components of Hadoop. Write down five key features of each component.| OR Write the name of five key components of Spark and five key features of each component.	**5+15** **5*4**	**4**