

17 DEC.2025 MCA (SEM-III) CHOICE BASED BDAV QP CODE: 10094516

(3 Hours)

[Total Marks: 80]

N.B.: 1) Question No.1 is **compulsory**.

2) Attempt any **three** from the remaining **five** questions.

Write a short note on following (**any Four**)

1. (a) 3Vs of Big Data [05]
(b) Components of Map Reduce [05]
(c) CAP Theorem [05]
(d) Pig Built-in Function [05]
(e) Features of Apache Spark [05]
(f) Goals of data visualization [05]
 2. (a) What is the architecture of Hadoop Distributed File System (HDFS)? Explain its components and working in detail. [10]
(b) Explain the concept of NoSQL and illustrate the various architectural patterns associated with NoSQL data systems. [10]
 3. (a) What are the main stages of MapReduce? Explain each stage briefly. [10]
(b) Demonstrate the working of Hive architecture with a clear diagram and discuss built-in functions commonly used in Hive operations [10]
 4. (a) Explain Apache Spark architecture with a neat diagram. Describe how data is aggregated using Pair RDDs in Spark. [10]
(b) How are D3 used to present results in big data analysis projects? [10]
 5. (a) Explain the architecture of Apache Pig along with its major components [10]
(b) What do you mean by Data Visualization? Explain the challenges of big data visualization [10]
 6. (a) Define Big Data and describe its various types. Differentiate between Traditional Data and Big Data with suitable examples. [10]
(b) Explain Apache Kafka architecture with the help of a neat diagram? [10]
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