

# GYANMANJARI INNOVATIVE UNIVERSITY

GYANMANJARI INSTITUTE OF TECHNOLOGY

M.TECH - End Semester Examination (ESE)-Summer-2026

Enrollment No.: \_\_\_\_\_

Subject Code: METCS12511

Date: 19/05/2026

Subject Name: BIG DATA ANALYTICS

Semester: 2

Time: 10:30 AM TO 01:30PM

Total Marks: 100

## Instructions:

1. Question No. 1 is compulsory.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		Marks
Q.1	(a) Explain the role of Big Data in Marketing and Advertising Analytics with suitable examples.	10
	(b) Explain Graph Databases. Compare them with relational databases.	10
Q.2	(a) Explain HDFS Architecture and Hadoop Design Principles. Discuss data integrity and fault tolerance mechanisms.	10
	OR	
	(a) Explain the MapReduce Execution Process including shuffle, sort, and task execution phases.	10
	(b) Explain HBase Data Model and Architecture. Illustrate with examples and client interaction.	10
	OR	
	(b) Explain Pig Latin Data Model and Execution. Write a sample Pig script for data analysis.	10
Q.3	(a) Evaluate YARN Architecture. Compare it with traditional MapReduce.	10
	(b) Discuss Hive Architecture and HiveQL. Demonstrate DDL and DML operations with examples.	10
	OR	
Q.3	(a) Design a Cassandra Data Model for a real-world application. Explain its architecture and client operations.	10
	(b) Analyze Hadoop Data Formats, Serialization (Avro), and Compression Techniques. Explain their role in performance optimization.	10
Q.4	(a) Evaluate Job Scheduling Mechanisms. Compare it with traditional MapReduce.	10
	(b) Explain Schema-less Databases. Compare them with relational databases.	10
	OR	
Q.4	(a) Write a short note on Hadoop pipes.	10
	(b) Explain MapReduce processes with its example.	10

- Q.5 (a)** Justify Hive SQL is used in data manipulation with proper example. 10
- (b)** Discuss Sharing and Replication Techniques (Peer-to-Peer) with respect to consistency and scalability. 10

**OR**

- Q.5 (a)** Discuss Fraud Detection and Risk Management using Big Data Analytics. Explain how big data helps in credit risk management. 10
- (b)** Discuss Sharing and Replication Techniques (Master-Slave) with respect to consistency and scalability. 10