R22 Regulation *Subject code:4E7GB*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech VII Semester Regular Examinations, November 2025

BIG DATA ANALYTICS

(CSE(AI&ML))

Maximum Marks: 60 Date: 26.11.2025 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X1M=10 Marks)		Marks	CO	BloomTx
1.a)	Define Big Data.	1M	1	L1
b)	Differentiate between structured and unstructured data.	1M	1	L2
c)	Define Load Leveling with Queues.	1M	2	L1
d)	What is the purpose of MapReduce in Big Data analytics?	1M	2	L1
e)	What is data acquisition in Big Data systems?	1M	3	L1
f)	Differentiate between batch and real-time data acquisition.	1M	3	L2
g)	What is Batch Analysis in Big Data?	1M	4	L1
h)	What is the role of the MapReduce framework?	1M	4	L1
i)	What is a relational database?	1M	5	L1
j)	Mention two advantages of using NoSQL for Big Data applications.	1M	5	L2

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BloomTx
2	a) Explain the concept of Big Data and its importance in modern analytics. b) Explain the architecture and components of the Big Data Stack.	5M 5M	1	L2 L2
	OR			
3	a) Discuss in detail the three V's of Big Data. b) Elaborate on the role and importance of visualization in Big Data Analytics.	5M 5M	1	L2 L3
4	a) Explain the major components of Big Data analytics architecture with a neat diagram. b) Explain the MapReduce programming model, its working mechanism, and advantages in Big Data analytics.	5M 5M	2	L2 L2
	OR			
5	a) Describe Load Balancing with Multiple Consumers and its advantages in distributed environments.	5M	2	L2

	b) Discuss the Lambda Architecture and its components.	5M		L2
6	a) Explain the process of Data Acquisition and its importance in Big Data analytics. b) Explain the architecture and working of Big Data Collection Systems.	5M 5M	3	L2 L2
	OR			
7	Write a detailed note on integrating Data Acquisition, Storage, and Processing using HDFS and Spark.	10M	3	L2
8	a) Explain the architecture of Hadoop and describe how MapReduce performs batch processing. b) Discuss the challenges in implementing large-scale batch analysis systems and how Spark addresses them.	5M 5M	4	L3 L2
	OR			
9	a) With a suitable case study, explain the Batch Analysis of News Articles. b) Elaborate on the advantages and limitations of Hadoop for batch analysis.	5M 5M	4	L3 L2
10	a) Discuss the limitations of traditional relational databases in Big Data environments. b) Illustrate how Django can be integrated with Big Data tools for web-based analytics dashboards.	5M 5M	5	L2 L2
	OR			
11	a) Compare and contrast SQL and NoSQL databases based on structure, scalability, and consistency. b) Explain design and architecture of Django.	5M 5M	5	L2 L2