

K. J. Somaiya Institute of Technology, Sion, Mumbai-22
(Autonomous College Affiliated to University of Mumbai)

Nov-Dec 2025-26

(B. Tech / M. Tech.) Program B. Tech Scheme I/II/IIB/III: II-B / II

Regular Examination: LY Semester: VII

Course Code: EXDLC7034 and Course Name: Big Data Analytics

Date of Exam: 25/11/2025

Duration: 02.5 Hours

Max. Marks: 60

- Instructions:
- (1) All questions are compulsory.
 - (2) Draw neat diagrams wherever applicable.
 - (3) Assume suitable data, if necessary.

Q. No.	Question	Max. Marks	CO	BT level
Q 1	Solve any two questions out of three: (05 marks each)	10		
a)	Explain characteristics of Big Data and its different types with suitable examples.		CO1	U
b)	Explain Hadoop ecosystem with neat labeled diagram.		CO2	U
c)	Explain master-slave and peer-to-peer distribution models in NoSQL systems.		CO3	AP
Q 2	Solve any two questions out of three: (05 marks each)	10		
a)	Analyze the roles of Map tasks, Reduce tasks, and Combiners to determine how their interaction influences data-flow efficiency in MapReduce.		CO4	AN
b)	Apply the concept of a Data Stream Management System to process a real-time data stream such as sensor readings or live network traffic.		CO5	AP
c)	Explain the concept of NoSQL and describe the main business drivers with the help of suitable case studies.		CO3	U
Q.3	Solve any two questions out of three. (10 marks each)	20		
a)	Explain the MapReduce software stack by describing distributed file systems, the physical organization of compute nodes, and large-scale file-system organization.		CO4	U
b)	Explain how the Apriori algorithm works to find frequent itemsets.		CO5	U
c)	Apply different NoSQL architecture patterns to model data for four different application scenarios.		CO3	AP
Q.4	Solve any two questions out of three. (10 marks each)	20		
a)	Analyze matrix multiplication operations when implemented using MapReduce and assess their effectiveness for large-scale data processing.		CO4	AN
b)	Apply nearest-neighbour search techniques to compute similarity between documents using a real-world example.		CO5	AP
c)	Apply the model of a recommendation system to build a collaborative-filtering example using the nearest-neighbor technique.		CO6	AP

