

Reg. No.....

Name.....

M. Sc. DEGREE END SEMESTER EXAMINATION - OCTOBER 2025**SEMESTER 3 - COMPUTER SCIENCE (ARTIFICIAL INTELLIGENCE)****COURSE: 24P3CAIT13EL: BIG DATA ANALYTICS***(For Regular 2024 Admission)*

Time: Three Hours

Max. Weightage: 30

PART - A**Answer any 8 Questions.****Weight: 1**

1. Identify the technological shift that enabled the growth of Big Data. (U, CO1)
2. Present the core advantages of Map-Reduce over traditional computation methods. (U, CO1)
3. Outline the role of parallelism in cluster-based data processing. (U, CO1)
4. List the challenges of statistical computation at scale. (U, CO1)
5. Summarize the unique features of Google File System. (U, CO1)
6. Define the purpose of Cassandra in massive data storage. (U, CO1)
7. Indicate the importance of stream filtering in real-time data mining. (A, CO2)
8. State the applications of sampling techniques in data streams. (A, CO2)
9. Mention the difference between Hub and Authority in link analysis. (U, CO1)
10. Highlight the benefits of online advertising through targeting. (A, CO2)

(1 x 8 = 8)**PART - B****Answer any 6 Questions.****Weights: 2**

11. Discuss the rise of data scientists as a profession and their contribution to Big Data analytics. (U, CO1)
12. Illustrate the design principles of the Map-Reduce algorithm with a use case. (A, CO2)
13. Analyse the scalability of HBase in distributed systems. (An, CO3)
14. Compare locality-sensitive hashing with exact similarity search methods. (An, CO4)
15. Examine the significance of counting distinct elements in massive data streams. (An, CO4)

16. Interpret the working of PageRank with an example scenario. (A, CO2)
17. Evaluate the importance of recommendation engines in e-commerce. (E, CO4)
18. Discuss the role of advertisement auctions in web-based marketing. (An, CO4)

(2 x 6 = 12)

PART - C**Answer any 2 Questions.****Weights: 5**

19. Assess the inadequacies of classical data management techniques in handling massive data. (E, CO1)
20. Design a strategy for processing log files using Map-Reduce. (C, CO2)
21. Critically analyse the architecture of HBase with respect to reliability and fault tolerance. (An, CO3)
22. Explore the challenges and benefits of building large-scale recommendation engines. (E, CO4)

(5 x 2 = 10)

OBE: Questions to Course Outcome Mapping

CO	Course Outcome Description	CL	Questions	Total Wt.
CO1	Understand what Big Data is and why classical data analysis techniques are no longer adequate	U	1,2,3,4,5,6,9,11,19	14
CO2	Understand the benefits that Big Data can offer to businesses and organizations	A	7,8,10,12,16,20	12
CO3	Understand conceptually how Big Data is stored	An	13,21	7
CO4	Understand how Big Data can be analyzed to extract knowledge	An	14,15,17,18,22	13

Cognitive Level (CL): Cr - CREATE; E - EVALUATE; An - ANALYZE; A - APPLY; U - UNDERSTAND; R - REMEMBER;