Time: 3 Hours   **Total Marks: 80**

Note: 1. Question 1 is compulsory
        2. Answer any three out of the remaining five questions.
        3. Assume any suitable data wherever required and justify the same.

Q.1 (a)	Explain 5 V's of big data.	**05**
(b)	Differentiate between SQL vs NoSQL	**05**
(c)	Write the limitations of Hadoop.	**05**
(d)	Explain how failures are handled in Map Reduce job	**05**
Q.2 (a)	Illustrate relational algebra operations with example.	**10**
(b)	Explain big data enabling technologies.	**10**
Q.3 (a)	Explain PCY algorithm and its types with neat labeled diagram	**10**
(b)	Compare different types of NoSQL architectural pattern	**10**
Q.4 (a)	Explain Hadoop Architectural Model with both components in detail	**10**
(b)	Write the functions of the components and execution steps in Map Reduce	**10**
Q.5 (a)	Write issues in data stream queries. Explain the issues in data streaming	**10**
(b)	Explain Page rank using Map reduce, also explain spider traps and dead ends	**10**
Q.6 (a)	Explain CURE algorithm with its advantages over traditional clustering algorithm	**10**
(b)	Explain Movie recommendation using Collaborative -based filtering.	**10**

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