

VIII

(R)

Bogorn - IT | winter 2025 | Q.P code - 82369

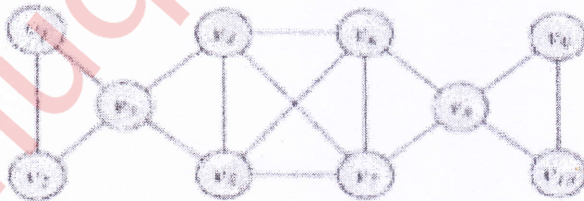
Date - 21/08/2025 [Marks :80]

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[3 hours]

- NB : 1) Question 1 is compulsory.
2) Attempt any three questions from the remaining questions.
3) Assume suitable data wherever applicable.

- 1 (a) Explain five big data characteristics. 5
(b) Explain CAP and Brewer's property for NOSQL system 5
(c) Explain most powerful phase of MapReduce programming model in detail.. 5
(d) Explain Bloom's filter for stream data mining with example. 5
- 2 (a) Discuss Matrix-Matrix Multiplication. Perform Matrix Multiplication with 1-step Map Reduce method 10
4 2 1 2
3 1 * 3 4
(b) Draw Hadoop ecosystem Architecture and explain any five components 10
- 3 (a) Explain DGIM algorithm with example 10
(b) Find the frequent itemset with minimum support 3 using PCY algorithm using hash 10
function $h(i,j) = i*j \text{ mod } 8$
T1--- 1,3,5,7
T2--- 1,3,5
T3--- 1,5,7
T4--- 1,2,7
- 4 (a) What is CPM? Apply CPM to find all communities in the graph given below 10



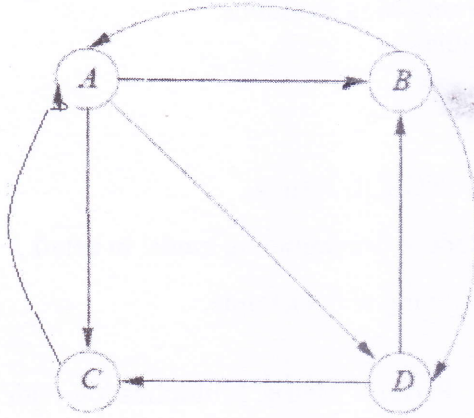
- (b) What is Recommendation System? Explain its types with real life example. 10

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- 5 (a) Explain CURE algorithm for clustering with example. 10
- (b) Compute the page rank of each page in the following figure after 3rd iteration. 10



- 6 Write a note on
 - (a) Relational Algebra using MapReduce 10
 - (b) Flajolet - Martin (FM) stream mining algorithm with example. 10
