[3 hours] **Marks: 80**

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

1 Solve all four. **20**

(a) What is Big Data and give types of big data.
(b) Elaborate issues of stream processing
(c) What are the advantages and limitations of Hadoop
(d) Explain CAP theorem and explain how NoSQL systems guarantees BASE property.

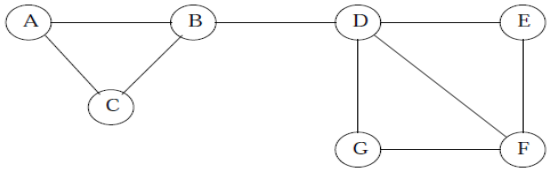
2 (a) Describe the pseudocode for one-step matrix multiplication using mapreduce. Apply the same to determine the product of matrices M and N: **10**

M =1 2 3 4 5 6 N= 1 2 3 4 5 6

Show output of each stage distinctly.

(b) Show any 5 different relational algebra operations with example. **10**

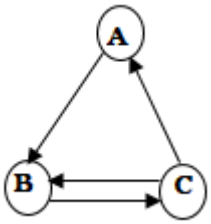
3 (a) For the graph given below use Clique percolation and find all communities **10**



(b) Summarize Bloom's filter with example and its applications. **10**

4 (a) Explain collaborative filtering. How it is different from content based filtering? **10**
(b) Explain the DGIM algorithm. State the rules used in DGIM that must be followed **10**

5 (a) Explain PCY algorithm and its 2 types with neat labeled diagram. **10**
(b) Define Hub and Authority. Compute the hub and Authority scores for the web: **10**



6 Write short notes on any two: **20**
(i) Cure algorithm.
(ii) NoSQL data stores with example.
(iii) Structure of the web

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