(3 Hours) **[Total Marks: 100]**

Note: 1) Question No. 1 is **compulsory**
2) Attempt any **four** questions from the remaining **six** questions.

Q 1. Write short note on the following (attempt any **Four**) 20
a. Parallel data base architectures
b. K-means Clustering
c. Search engines
d. Neural networks
e. ORDBMS

Q 2. a) What are multidimensional cubes? Explain how the Pivot and Slice-dice operations are performed. 10
b) Describe Naïve bays classification in detail with suitable example. 10

Q 3. a) Discuss how the scanning, sorting and join operations can be parallelized using data partition technique 10
b) Explain Bell-LaPedula Model. 10

Q 4. a) Discuss Deadlock detection in distributed database. Explain dead lock preventive techniques with example. 10
b) Explain the Architecture of data warehouse and explain detail. 10

Q 5. a) Explain ETL process in data warehousing in detail with suitable examples. 10
b) Describe KDD Process in detail with suitable examples. 10

Q 6. a) How recovery in a distributed DBMS is more complicated than in centralized system. Justify your answer. 10
b) What is bloom join and semi join? Explain them in detail with example. 10

Q 7. Differentiate between the following: 20
a. Synchronous vs Asynchronous replication
b. Star schema vs Snow flake schema
c. OODBMS vs ORDBMS
d. OLAP vs OLTP

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