BACHELOR OF TECHNOLOGY (CBCS) (2020 COURSE)
B.Tech.Sem - V IT : WINTER : 2023
SUBJECT : ITC-III: ADVANCED DATABASE SYSTEM

Day : Tuesday
Date : 12/12/2023

W-24733-2023

Time : 02:30 PM-05:30 PM
Max. Marks : 60

N.B.

1) All questions are **COMPULSORY**.
2) Figures to the **RIGHT** indicate **FULL** marks.
3) Assume suitable data **WHEREVER** necessary.
4) Draw neat labeled diagrams **WHEREVER** necessary.

Q.1 Why is transparency an impotent virtue of distributed database? Enlist and elaborate the major forms of transparencies implemented in a distributed database. **(10)**

OR

Q.1 What is a global directory in distributed database? Enlist and elaborate the global directory issues. **(10)**

Q.2 Why is query decomposition required in query proceeding? Elaborate the steps of query decomposition a distributed databases. **(10)**

OR

Q.2 State and explain in detail the major issues for distributed query optimization. **(10)**

Q.3 With the help of a suitable example, explain parallel external sort merge technique applied in parallel database systems. **(10)**

OR

Q.3 Consider n processors are being used and relation R and S are to be joined. State and explain a partitioned join strategy for the case. **(10)**

Q.4 Consider that a distributed database system fails due to link failure and partitioning of the network. Which recovery mechanisms can be applied in these cases? Elaborate in brief. **(10)**

OR

Q.4 What are the deadlock handling concerns in a distributed database system that are not present in a centralized system? How does deadlock prevention strategy differ for distributed database system than the centralized system? Elaborate. **(10)**

Q.5 Justify the need for performance tuning of databases. Enlist and elaborate the common database performance tuning techniques. **(10)**

OR

Q.5 With the help of a neat diagram, explain the architecture and components of a data warehouse. **(10)**

Q.6 Exemplify the embedded data model and normalized data model of MongoDB. **(10)**

OR

Q.6 Consider twitter post data is to be stored. Which NoSQL database and its subsequent data model will be suitable for the purpose? Justify the answer. **(10)**

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