

Time: 3 hours

Marks: 80

- N.B.:** 1. Question no. 1 is compulsory.  
 2. Attempt any Three from remaining questions.  
 3. Give examples wherever required.

- Q 1 a List out the twelve rules for distributed DB. **5**  
 b Explain Shared Memory and Shared Nothing Architecture for Parallel DBs. **5**  
 c Why BCNF is called as stricter than 3NF? Justify your answer. **5**  
 d What is Materialized View, What is its utility? **5**
- Q 2 a Explain Discretionary Access Control, Mandatory Access Control and Role- Based Access Control in brief. **10**  
 b Explain Significance of each step in ETL Process, also explain types of data extraction and data transformation. **10**
- Q 3 a Explain Sort-Merge Join and HASH Join. **10**  
 b Explain Wait- Die and Wound-Wait methods for Deadlock Prevention. Compare them in terms of no. of Possible rollbacks and Starvation. **10**
- Q 4 a Explain Star and Snow Flake Schema. Specify their Pros and Cons. **10**  
 b Explain Aries Algorithm in detail. **10**
- Q 5 a Consider a data warehouse for weather related data like region, date and temperature. Using this example explain all the OLAP operations **10**  
 b Explain Primary Horizontal, Derived Horizontal and Vertical Fragmentation with example. Comment on Completeness, Reconstruction and Disjointness Properties. **10**
- Q 6 Short Note on:  
 a Temporal databases **5**  
 b Spatial Databases **5**  
 c Inconsistent read, fuzzy read and phantom read problems in concurrent schedules. **5**  
 d Data Marts **5**

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