

22/11/2024 IT SEM-V C SCHEME DLOC-ADMT QP CODE: 10067679

Time: 3 Hours

Max. Marks: 80

**N.B.: 1. Question no. 1 is compulsory.**

**2. Attempt any Three from out of remaining Five questions.**

**3. Assume suitable data wherever necessary.**

**4. Figures at right indicates full marks.**

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|-----|---|----|
| Q 1 | a Explain Factless fact table.  | 05 |
|     | b Explain vertical fragmentation with example   | 05 |
|     | c Explain Query processing in detail.   | 05 |
|     | d Explain in brief the CAP Theorem  | 05 |
| Q 2 | a Explain external merge sort algorithm with proper example and required number of block transfer and seek cost..   | 10 |
|     | b Explain Significance of each step in ETL Process, also explain types of data extraction with examples.  | 10 |
| Q 3 | a What is mean by Distributed databases? List and explain types of distributed databases.   | 10 |
|     | b Explain Discretionary Access Control, Mandatory Access Control and Role-Based Access Control in brief.  | 10 |
| Q 4 | a What is general purpose of data warehouse architecture? Explain in detail data warehouse architecture and draw star schema for hospital management system.  | 10 |
|     | b What is big data? Explain in detail types and characteristics of big data.  | 10 |
| Q5  | a Explain in detail Key-value store and Document store data architectural patterns of NOSQL.  | 10 |
|     | b Consider a data warehouse for hospital, where there are three dimensions i) Doctor ii)Patient and iii)Time and two measures i) Count ii) Charge . For this example analyze the following OLAP operations 1) slice 2) dice 3) rollup 4) drill down 5) pivot. | 10 |
| Q6  | a Differentiate between OLAP and OLTP   | 05 |
|     | b Explain mobile and spatial databases.   | 05 |
|     | c Explain query optimization approaches.  | 05 |
|     | d Explain challenges in ETL functions.  | 05 |