

(3 Hours)

[Total 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 challenges in ETL functions. | 5 |
| | b | Differentiate between Star and Snowflake Schema | 5 |
| | c | Explain Query processing in detail. | 5 |
| | d | Write a note on Mandatory Access Control. | 5 |
| Q 2 | a | Explain Discretionary Access Control with grant option. | 10 |
| | b | Explain the concept immediate data extraction and deferred data extraction in data warehouse with suitable example. | 10 |
| Q 3 | a | Explain external sort merge algorithm with proper example and required number of block transfer and seek cost. | 10 |
| | b | What is big data? Explain in detail types and characteristics of big data. | 10 |
| Q 4 | a | Draw and Explain Enterprise and federated data warehouse architectures. | 10 |
| | b | What is mean by Distributed databases? List and explain types of distributed databases. | 10 |
| Q 5 | a | Consider a data warehouse for weather related data like region, date and temperature. Using this example analyse the following OLAP operations 1)slice 2)dice 3)rollup 4)drill down 5)pivot. | 10 |
| | b | Explain in brief the CAP theorem and BASE property of NOSQL with suitable diagram | 10 |
| Q 6 | | Write Short Note on: | |
| | a | Data loading techniques in data warehouse | 10 |
| | b | Temporal and Spatial Databases | 10 |
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