UNIT I   FUNDAMENTALS OF TUNING                      8
Review of Relational Databases – Relational Algebra - Locking and Concurrency Control –
Correctness Consideration – Lock Tuning – Logging and the Recovery Subsystem –
Principles of Recovery – Tuning the Recovery Subsystem – Operating Systems
Considerations – Hardware Tuning.

UNIT II  INDEX TUNING                                8
Types of Queries – Data Structures – B tree – B’ Tree - Hash Structures – Bit Map
Indexes – Clustering Indexes – Non Clustering Indexes – Composite Indexes – Hot
Tables – Comparison of Indexing and Hashing Techniques.

UNIT III  QUERY OPTIMIZATION                        10
Techniques - Tuning Relational Systems – Normalization – Tuning Denormalization –
Clustering Two Tables – Aggregate Maintenance – Record Layout – Query Tuning –
Triggers – Client Server Mechanisms – Objects, Application Tools and Performance –
Tuning the Application Interface – Bulk Loading Data – Accessing Multiple Databases.

UNIT IV   TROUBLESHOOTING                           10
Queries – Analyzing a Query’s Access Plan – Profiling a Query Execution – DBMS
Subsystems.

UNIT V    CASE STUDIES                              9
Transaction Chopping – Time Series Databases – Understanding Access Plans
Configuration Parameters: Oracle; SQL Server; DB2UDB – Distributed Database -
Implementation.

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REFERENCES

1. Dennis Shasha and Philippe Bonnet “Database Tuning, Principles, Experiments,

2003.