

Center for Learning and Teaching

IAE-3
Set-B

Institution	SNSCT
Branch	CSE
Semester	IV
Course Code/Name	19CST202 - DBMS
Name of the Faculty	M. G. Swathi AP/CSE

S.No	Quality Parameters based on blooms	Grade points (g)	Part	No of Questions(n)	Allotted marks (m)	n*m	Q= n*m*g
1	Remember/ Understand (Level - 1,2)	1	A	4	2	8	8
			B				
			C				
2	Apply (Level - 3)	2	A				
			B	1	14	14	28
			C				
3	Analyze (Level - 4)	3	A	1	2	2	6
			B	5	4 x 13 = 52 1 x 14 = 14	66	198
			C				
4	Evaluate (Level - 5)	4	A				
			B				
			C				
5	Create (Level - 6)	5	A				
			B				
			C				

Quality Index

$$Q_i = \frac{\sum Q}{\sum (n \times m)} = \frac{240}{90} = 2.66$$

[Signature]
Faculty 28/5

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Teaching Coordinator

[Signature]
HoD/Dean



SNS College of Technology, Coimbatore-35.

(Autonomous)

B.E/B.Tech- Internal Assessment -III

Academic Year 2023-2024(EVEN)

Sixth Semester

19CST202 – Database Management Systems

(Common to AIML, CSE and IT)

B

Reg.No:

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Time: 1 1/2 Hours

Maximum Marks: 50

Answer All Questions

PART-A (5 x 2 = 10 Marks)

1. List the properties of transaction. CO4 Und
2. Compare Shared lock and Exclusive lock. CO4 Und
3. What are the different levels in isolation? CO4 Rem
4. Differentiate B+ Tree Index Files & B Tree Index Files. CO5 Ana
5. Define primary storage. CO5 Rem

PART B — (13+13+14 = 40 Marks)

6. (a) Illustrate the various list of deadlock with a suitable example 13 CO4 Ana
 - (i) Deadlock Avoidance
 - (ii) Deadlock prevention
 - (iii) Mutual Exclusion

(or)
- (b) Explain the locking protocol and its types used for the transaction. 13 CO4 Ana
7. (a) Explain about the Indexes and abbreviate any 4 types of Indexing with neat diagram. 13 CO5 Ana

(or)
- (b) Describe the structure of B tree and give the algorithm for search in the B with example. 13 CO5 Ana
8. (a) Illustrate Online Transaction Processing (OLTP) in ATM. 14 CO4 Ana

(or)

(b)

Create a database for employee payroll management system and perform following operations in MangODB,

- (i) Creating a database using "use" command
- (ii) Creating a Collection/Table using insert()
- (iii) Adding documents using insert() command

(Note: UND-Understand

REM-Remember ANA-Analyze APP-Apply)

Prepared by *Sunil J 28/5*

Verified by *[Signature]*

[Signature]
HOD



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B

Reg.No:

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Time: 1 1/2 Hours

Maximum Marks: 50

Answer All Questions

PART-A (5 x 2 = 10 Marks)

- List the properties of transaction.
Atomicity, Consistency, Isolation, Durability
- Compare Shared lock and Exclusive lock.

s.no.	Shared Lock	Exclusive Lock
1.	Lock mode is read only operation.	Lock mode is read as well as write operation.
2.	Prevents others from updating the data.	Prevents others from reading or updating the data.

What are the different levels in isolation?

- Read Committed, Read Uncommitted, Repeatable Reads, Serializable
- Differentiate B+ Tree Index Files & B Tree Index Files.

	B tree	B+ tree
Basis of Comparison	All internal and leaf nodes have data pointers	Only leaf nodes have data pointers
Pointers	Since all keys are not available at leaf, search often takes more time.	All keys are at leaf nodes, hence search is faster and more accurate.
Search		

- Define primary storage.

The memory storage that is directly accessible to the CPU comes under this category. CPU's internal memory (registers), fast memory (cache), and main memory (RAM) are directly accessible to the CPU, as they are all placed on the motherboard or CPU chipset.

- (a) PART B — (13+13+14 = 40 Marks)

Illustrate the various list of deadlock with a suitable example
(i) Deadlock Avoidance

When a database is stuck in a deadlock, It is always better to avoid the deadlock rather than restarting or aborting the database. The deadlock avoidance method is suitable for

13 CO4 Ana

smaller databases whereas the deadlock prevention method is suitable for larger databases.

(ii) Deadlock prevention method is suitable. A deadlock can be prevented if the resources are allocated in such a way that a deadlock never occurs

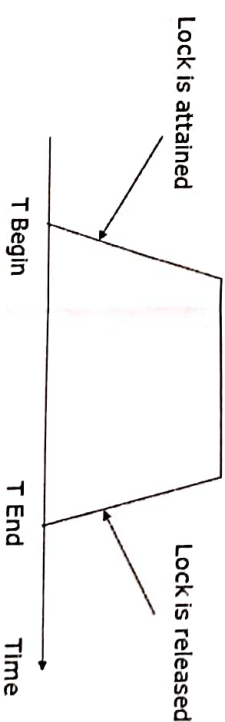
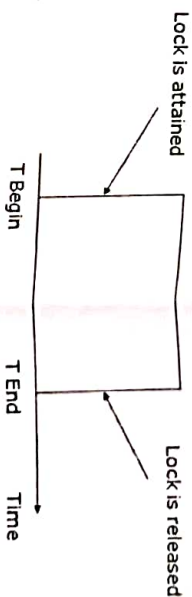
(iii) Mutual Exclusion
Mutual exclusion is a program object that blocks multiple users from accessing the same shared variable or data at the same time. With a critical section, a region of code in which multiple processes or threads access the same shared resource, this idea is put to use in concurrent programming.

- (b) Explain the locking protocol and its types used for the transaction.

- Shared Lock
- Exclusive Lock

Four types of Locking Protocol:

- Simplistics Locking Protocol
- Pre-claiming Locking Protocol
- Two Phase Locking Protocol
- Strict Two Phase Locking Protocol



13 CO4 Und

CO5 Rem

CO4 Rem

CO5 Ana

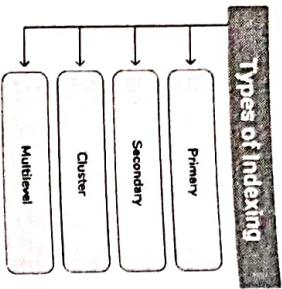
CO4 Und

CO4 Und

7. (a) Explain about the Indexes and abbreviate any 4 types of Indexing with neat diagram. 13 COS Ana

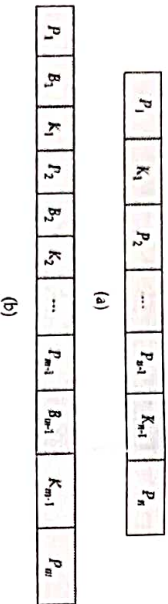
- Efficiently returns a collection of matching records.
- An Index is a small table having only two columns.
- The first column comprises a copy of the primary or candidate key of a table.
- The second column contains a set of pointers for holding the address of the disk block where that specific key-value is stored.

Types of Indexing



(or)

(b) Describe the structure of B tree and give the algorithm for search in the B with example. 13 COS Ana



8. (a) Illustrate Online Transaction Processing (OLTP) in ATM. OLTP (online transaction processing) is a class of software programs capable of supporting transaction-oriented applications. In computing, a transaction is a sequence of discrete information exchanges that are treated as a unit. Many everyday acts involve OLTP, including online banking, online shopping and even in-store shopping when the point of sale (POS) terminal is tied to inventory management software.

14 CO4 Ana

Characteristics of OLTP
OLTP-based applications have a range of characteristics and features. They include the following:

- High volume of concurrent users accessing data;
- Frequent data modification;
- Data integrity because data transactions happen in a specific order and users cannot change data simultaneously;

(or)

(b) Create a database for employee payroll management system and perform following operations in MongoDB, 14 COS App

- Creating a database using "use" command
- Creating a Collection/Table using insert()
- Adding documents using insert() command

```

> use company
switched to db company
> db
company
> insert({ "Employee": insert(
  {
    "EmployeeName": "Chris",
    "EmployeeDepartment": "Sales"
  }
)
writeResult({ "inserted" : 1 })
  
```

```

db.collection.insert(
  <document or array of documents>,
  writeConcern: <document>,
  ordered: <boolean>
)
  
```

(Note: UND-Understand REM-Remember ANA-Analyze APP-Apply)

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