II B. Tech I Sem – Semester End Examinations – Supplementary – Jul 2022

Subject Name: DATABASE MANAGEMENT SYSTEMS   **Subject Code: 194GA05302**

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| AY: 2021-22 | **Scheme of Evaluation** | SRIT R19 |

PARTA
(Compulsory Question)
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1 Answer the following: (10 X 02 = 20 Marks)

a) Mysql, DB2, Oracle SQL are the examples of DBMS. This helps provide data security, data integrity, concurrency, and uniform data administration procedures.   2M

b) Syntax of DDL Commands like CREATE, ALTER, TRUNCATE and DROP.   2M

c) A database schema defines how data is organized within a relational database; this is inclusive of logical constraints such as, table names, fields, data types, and the relationships between these entities   2M

d) A nested query is a query that has another query embedded within it. The embedded query is called a subquery. A subquery typically appears within the WHERE clause of a query. It can sometimes appear in the FROM clause or HAVING clause.   2M

e) Any two relevant Difference of 3NF and BCNF   2M

S.NO.	3NF	BCNF
1	no transitive dependency that is no non prime attribute	for any relation A->B, A should be a super key of relation.
2	Lossless decomposition can be achieved	Lossless decomposition is hard to achieve

f) There are five such types of attributes: Simple, Composite, Single-valued, Multi-valued, and Derived attribute. One more attribute is their, i.e. Complex Attribute, this is the rarely used attribute. Specify examples for each type of attributes.   2M

g) Serializability is the classical concurrency scheme. It ensures that a schedule for executing concurrent transactions is equivalent to one that executes the transactions serially in some order.   2M

h) The potential for deadlock exists in most locking protocols. Deadlocks are a necessary evil. sequence of other transactions request and are granted an S-lock on the same item. È The same transaction is repeatedly rolled back due to deadlocks.   2M

i) Flash memory, also known as flash storage, is a type of nonvolatile memory that erases data in units called blocks and rewrites data at the byte level. Flash memory is widely used for storage and data transfer in consumer devices, enterprise systems and industrial applications   2M

j) Hash-based indexing does not maintain any ordering among the indexed values; rather it is based on mapping the search-key values on a collection of buckets. Therefore it can only address equality (or membership) queries. Tree-based indices maintain order and can thus also address range queries.   2M

PARTB
(Answer all five units, 5 X 10 = 50 Marks)

UNIT1

2 a) Diagram for 2-tier and 3-tired Architecture with explanation   5M

   b) Data Model Definition.   5M
       Each type of Data model disussion with an example.

(OR)

3 a) Explanation of several database applications.   5M

   b) A Database Administrator (DBA) is individual or person responsible for controlling, 5M
       maintenance, coordinating, and operation of database management system. Managing,
       securing, and taking care of database system is prime responsibility. (2M)
       Explantion about functions of DBA(3M)

UNIT2

4 a) Any five difference between tuple relational calculus and Domain Relational Calculus 5M

   b) Null Value defintion and illustration(2M),   5M
       Explanation of each Aggregate Funtions with an example.(3M)

(OR)

5 a) Relational Algebra Definition (2M)   5M
       Listing of all Relational Algebra Operators (1M)
       Explanation of SELECT and PROJECT Operators with examples. (2M)
   b) View Definiton + View snytax (2M)   5M
       Explantion of Views with an Example (3M)

UNIT3

6 a) Defintion of ER Model. (2M)   5M
       Explanation of ER Model by Considering several examples. (3M)
   b) Defintion of Functional Dependencies.(2M)   5M
       Illustration of the importance of fuctional depencies while designing databases.(3M)

(OR)

7 a) Explation of multi-valued dependancy and fourth normal form with examples.   5M

   b) Entity set and Relationship set definitions (2M)   5M

       Graphically represent of ER Digram symbols (3M)

UNIT4

8 a) Time-stamp based protocal rules for writing and reading a data.(3M)   5M
       Explanation of this protocol by considering a cocurrent Schedule.(2M)
   b) Explanations of ACID properties   5M

(OR)

9 a) By Cosidering a Cocurrent Schedule an Example, Apply 2PL locking and seriabilty occours or not 5M
       by verifying the coccurent schedule.

   b) DeadLock handling methods in DBMS are Deadlock detection, Avoidance and Prevention (2M) 5M
       Explanation of any two handling methods (3M)

UNIT5

10 a) Redundant Array of Independent Disk (RAID) combines multiple small, inexpensive disk drives 5M
       into an array of disk drives which yields performance more than that of a Single Large Expensive
       Drive (SLED). RAID is also called Redundant Array of Inexpensive Disks.(2M)
       Explantion of RAID Levels like RAID-0, RAID-1, RAID-2, RAID-3, RAID-4 and RAID-5. (3M)
   b) Query Processing is the activity performed in extracting data from the database. In query 5M

processing, it takes various steps for fetching the data from the database. The steps involved are:

Parsing and translation

Optimization

Evaluation
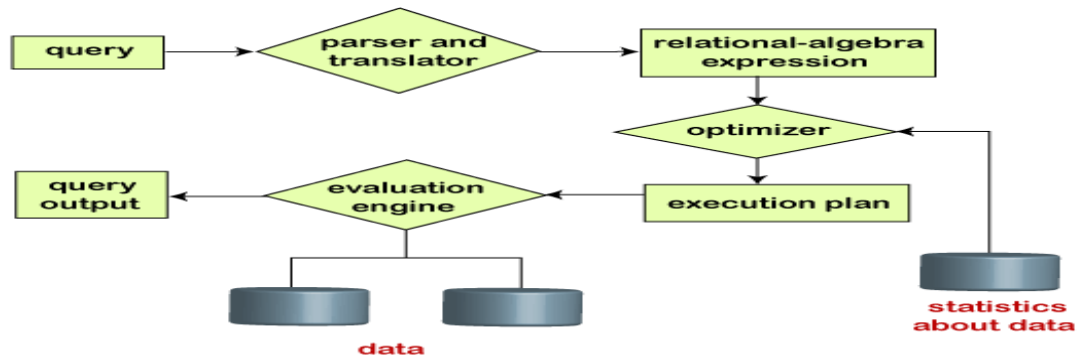
Steps in query processing

(OR)

11 a) Specifying various types of records (2M)   5M

Explaning of how records are organized in a file(3M)

b)

Key Factor	Static Hashing	Dynamic Hashing
Form of Data	Fixed-size, non-changing data.	Variable-size, changing data.
Result	The resulting Data Bucket is of fixed-length.	The resulting Data Bucket is of variable-length.
Bucket Overflow	Challenge of Bucket overflow can arise often depending upon memory size.	Bucket overflow can occur very late or doesn't occur at all.
Complexity	Simple	Complex

5M