SRM VALLIAMMAI ENGINEERING COLLEGE

(An Autonomous Institution)

SRM Nagar, Kattankulathur – 603 203

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

(Common to B.Tech. – IT, B.E. – CYS)

QUESTION BANK

IV SEMESTER

CS3463 – DATABASE MANAGEMENT SYSTEMS

Regulation – 2023

Academic Year 2024-2025 (Even Semester)

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SUBJECT : CS3463 – DATABASE MANAGEMENT SYSTEMS

SEM / YEAR: IV / II

UNIT I-INTRODUCTION TO DATABASES AND SQL			
Purpose of Database System – View of data –Database and Application Architecture-Database Administrator– Introduction to Relational model – Structure of Relational Database- Database Schema-Keys – Schema diagram –Introduction to SQL- SQL Data Definition –basic Structure of SQL Queries-Additional Basic operation- Set operation-Null Values- Aggregate Function- Modification of the Database-Intermediate SQL –Join operation-Transactions-Integrity constraints- Trigger.			
PART A			
Q.No	**Questions**	**Level**	**Competence**
1.	What is a database?	BTL1	Remembering
2.	List any five applications of DBMS.	BTL1	Remembering
3.	Define the role of a Database Administrator (DBA).	BTL1	Remembering
4.	State the primary purpose of a database system?	BTL1	Remembering
5.	What does the term "Schema" refer to in a database context?	BTL1	Remembering
6.	What is a primary key in a relational database?	BTL1	Remembering
7.	What is a foreign key in a relational database?	BTL1	Remembering
8.	What is the structure of a relational database?	BTL1	Remembering
9.	Explain the purpose of SELECT statement in SQL?	BTL2	Understanding
10.	Illustrate JOIN operation in SQL?	BTL2	Understanding
11.	Which aggregate function in SQL is used to calculate the average value?	BTL1	Remembering
12.	What is the purpose of the INSERT INTO SQL statement?	BTL1	Remembering
13.	What is meant by the term "NULL" in SQL?	BTL1	Remembering
14.	How does a schema diagram help in understanding a database structure?	BTL2	Understanding
15.	Describe the role of a Database Administrator (DBA) in database management.	BTL2	Understanding
16.	Identify the purpose of WHERE clause in an SQL query?	BTL2	Understanding
17.	Discuss the importance of keys in a relational database?	BTL2	Understanding
18.	Describe the difference between a primary key and a candidate key.	BTL2	Understanding
19.	What is the significance of using aggregate functions like SUM() or COUNT() in SQL queries?	BTL2	Understanding
20.	Explain why transactions important in a database system?	BTL2	Understanding

21.	How does the GROUP BY clause work in SQL?	BTL2	Understanding
22.	What is the difference between INNER JOIN and LEFT JOIN in SQL?	BTL1	Remembering
23.	Outline the role of integrity constraints in ensuring data accuracy.	BTL2	Understanding
24.	What is a trigger in a database, and why is it used?	BTL1	Remembering
	PART B		
1.	Design a database system for a hospital management system (HMS) that addresses the main purposes of a database system such as data storage, data retrieval, data integrity, security, and concurrency control	BTL3	Analyzing
2.	Analyze the different views of a database system (internal, conceptual, and external) and how each view contributes to the overall design and functionality of the database. Compare and contrast the advantages and limitations of these views .	BTL4	Applying
3.	Explain in detail about the structure of Database Management System.	BTL5	Evaluating
4.	Demonstrate in detail about types of DBMS Architecture	BTL4	Analyzing
5.	Determine the roles and responsibilities of a Database Administrator (DBA) in the management and operation of Database Management System (DBMS).	BTL4	Analyzing
6.	Examine how the database schema serves as a blueprint for the database. Discuss its role in organizing data and defining the relationships between tables. How does the schema ensure data consistency and integrity in a relational database?	BTL4	Analyzing
7.	Examine the various types of keys—primary keys, foreign keys, candidate keys, and composite keys—and their roles in maintaining data integrity and enabling efficient querying. Discuss how keys relate to the normalization process and contribute to reducing redundancy and ensuring referential integrity.	BTL4	Analyzing
8.	Evaluate the importance of schema diagrams in understanding and documenting a relational database. How do schema diagrams represent relationships between tables, and why are they essential for both database design and communication with developers and stakeholders?	BTL4	Understanding
9.	Evaluate the basic structure of SQL queries and the effectiveness of SQL in various types of database operations. Discuss the key components of SQL queries, including the SELECT, FROM, WHERE, GROUP BY, HAVING, and ORDER BY clauses.	BTL5	Evaluating
10.	Analyze the types of Database schema and Database Schema Designs.Evaluate the importance of a database schema in relational database design.	BTL4	Analyzing
11.	Explain the types of Triggers. Discuss how triggers work by in a database. Using a real-world example, evaluate the advantages and potential challenges of implementing triggers in a database.	BTL4	Analyzing
12.	Apply the concept of integrity constraints in relational database design and explain the different types of integrity constraints with	BTL3	Applying

	example		
13.	Design a relational database for a Library Management System (LMS) using SQL Data Definition Language (DDL). Your design should include multiple tables to store data related to books, members, and transactions **In your design, create the following:** i) **Table Definitions**: Using SQL, create tables for: • Books: Attributes should include Book ID, Title, Author, ISBN, and Genre. • Members: Attributes should include Member ID, Name, Email, Phone Number, and Membership Date. • Transactions: Attributes should include Transaction ID, Member ID (Foreign Key), Book ID (Foreign Key), Issue Date, Return Date, and Due Date. ii) **Constraints and Integrity**: Define appropriate constraints, including: • Primary keys for each table. • Foreign keys for relationships between tables. • Not null constraints where necessary. • Check constraints on fields like ISBN (valid format) and Due Date (should be after Issue Date). iii) **SQL Queries for Data Manipulation**: Write SQL queries to: • Insert sample data into the tables. • Update the return date of a specific transaction. Delete a member record, ensuring that their transactions are also handled appropriately (cascading effect).	BTL6	Creating
14.	List and explain the properties of Transaction. Discuss how SQL transactions are used to maintain data consistency. Provide examples of how transactions are used in real time applications.	BTL4	Analyzing
15.	Consider the employee database, where the primary keys underlined.employee(empname,street,city)works(empname,company name,salary)company(companyname,city)manages(empname,management) Give an expression in the relational algebra for each request. 1) Find the names of all employees who work for First Bank Corporation.(5) 2) Find the names, street addresses and cities of residence of all employees whowork for First Bank Corporation and earn more than 200000 per annum.(5) 3) Find the names of all employees in this database who live inthe same city as the company for which they work.(6)	BTL3	Applying
16.	Evaluate the use of SQL aggregate functions (COUNT, SUM, AVG, MAX, MIN) in analyzing data from a relational database. Create a set of queries using these aggregate functions to solve a practical problem in a real-world scenario. What is the impact of using aggregate functions in large datasets and handling NULL values	BTL5	Evaluating
17.	Create a complex SQL query involving multiple JOIN operations to retrieve data from several related tables in a relational database. In your solution, demonstrate the application of INNER JOIN, LEFT JOIN, RIGHT JOIN, and FULL OUTER JOIN. Additionally,	BTL6	Creating

	explain the logic behind each JOIN type and how it impacts the result set. Design a real-world scenario and create SQL queries to extract meaningful insights from the data.		

UNIT II - DATABASE DESIGN

Entity-Relationship model — E-R Diagrams — Enhanced-ER Model — ER-to-Relational Mapping — Functional Dependencies — Non-loss Decomposition — First, Second, Third Normal Forms, Dependency Preservation — Boyce/Codd Normal Form — Multi-valued Dependencies and Fourth Normal Form — Join Dependencies and Fifth Normal Form.

PART – A

Q.No	Question	Level	Competence
1	Define Functional Dependency.	BTL2	Understanding
2	Discuss about 2NF.	BTL2	Understanding
3	Define Normalization.	BTL2	Understanding
4	Define Entity – Relationship Model.	BTL1	Remembering
5	List the properties of decomposition.	BTL2	Understanding
6	State the advantage of the First Normal Form.	BTL1	Remembering
7	Show the disadvantage of the Second Normal Form.	BTL2	Understanding
8	List the anomalies of 1NF.	BTL1	Remembering
9	Assess the significance of cardinality ratio.	BTL2	Understanding
10	Discuss about BCNF.	BTL2	Understanding
11	Define 3 Normal Form.	BTL1	Remembering
12	Write about transitive functional dependency.	BTL1	Remembering
13	Design a Database to illustrate BCNF.	BTL1	Remembering
14	Which normal form is considered adequate for normal relational databasedesign?	BTL1	Remembering
15	Consider the relation scheme R (A, B, C) R (A, B, C) with the followingfunctionaldependencies: A, B→CC→AA, B→CC→A Show that the scheme RR is the Third Normal Form (3NF) but not in Boyce-Code Normal Form (BCNF).	BTL2	Understanding
16	What is the output of following statement? $\sigma_{subject = "database"}(Books)$	BTL2	Understanding
17	Design a Database to illustrate 3NF.	BTL1	Remembering
18	Define trivial dependency?	BTL2	Understanding
19	What is meant by computing the closure of a set of functional dependency?	BTL1	Remembering
20	What is weak entity? Give Example.	BTL2	Understanding
21	Define 4^{th} normal Form.	BTL2	Understanding
22	Evaluate the issues faced in 3^{rd} normal form.	BTL2	Understanding
23	Discuss Lossless Decomposition?	BTL2	Understanding
24	Define Join Dependency.	BTL2	Understanding

PART – B

Q.No	Question	Level	Competence
1	Illustrate with an example what is meant by partial functional dependencyand describe how this type of dependency relates to 2NF. (16)	BTL5	Evaluating

2	(i) Develop an E-R diagram for a car-insurance company whose customers ownone or more cars each. Each car has associated with it zero to any numberof recorded accidents. State any assumptions you make. (6) (ii) A university registrar's office maintains data about following entities: (iii) 1)Courses, including number, title, credits, syllabus, and prerequisites; 2) Course offerings, including course number, year, semester, sectionnumber,instructor, timings and classroom; 3) Students, including studentid, name, and program; and Instructors, including identification number, name, department, and title.Further, the enrollment of students in courses and grades awarded to students in each course they are enrolled for must be appropriately modeled. Constructan E-R diagram for the registrar's office. Document all assumptions that you make about the mapping constraints. (10)	BTL6	Creating
3	Determine about 3NF and BCNF with relevant table structure. (16)	BTL5	Evaluating
4	Illustrate the multi-value dependency and the fourth normal form-4NF with anexample (16)	BTL3	Applying
5	(i) Compare the features of file system with database system. (6) (ii) Explain the differences between physical level, conceptual level andview level of data abstraction. (5) (iii) Write short note on attributes of an entity. State an example. (5)	BTL5	Evaluating
6	Illustrate in detail, the join dependency and the fifth normal form-5NF. (16)	BTL3	Applying
7	Explain Functional dependency and trivial functional dependency with examples.(16)	BTL5	Evaluating
8	For the following relation R and set of functional dependencies F:R (A, B, C,D, E), F = {AC -> E, B->D, E-> A)}. Show all candidatekeys. (16)	BTL3	Applying
9	(i)Summarize the term anomalies. Explain BCNF in detail. (8) (ii)Decide why BCNF is used and how it differs from 3NF.(8)	BTL5	Evaluating
10	(i) Analyze about lossless Decomposition. (8) (ii) Design your own database to illustrate 3NF.(8)	BTL4	Analyzing
11	Illustrate what is meant by transitive dependency and describe how this type of dependency relates to 3NF. Provide an example to illustrate your answer.(16)	BTL3	Applying
12	Determine about Functional Dependencies and its impact on the data base.(16)	BTL5	Evaluating
13	Illustrate in detail about the following (i)Non loss decomposition. (8) (ii)Lossy decomposition. (8)	BTL3	Applying
14	Analyze the following: (i) Join Dependencies. (8) (ii) 5^{th} Normal Form. (8)	BTL4	Analyzing

15	Explain the following terms: a. Fully functional Dependencies (8) b. Transitive Dependencies (8)	BTL3	Applying
16	Illustrate about schema refinement in database design.(16)	BTL3	Applying
17	Explain the following: Multi-valued dependencies and Fourth normal forms.(16)	BTL4	Analyzing

UNIT-III - TRANSACTION AND CONCURRENCY CONTROL

Transaction Concepts – ACID Properties – simple transaction model– Transaction Atomicity and Durability – Transaction Isolation –Serializability – Transaction Isolation and Atomicity –Concurrency Control – Lock based protocols – Locking Protocols – Two Phase Locking – Deadlock –prevention– Deadlock Detection and Recovery – Multiple Granularity – Timestamp–Based Protocols.

PART-A

Q.No	Question	Level	Competence
1	Define transaction.	BTL1	Remembering
2	Give the reasons for allowing concurrency.	BTL2	Understanding
3	Analyze on average response time.	BTL4	Analyzing
4	Evaluate the situation to roll back a transaction.	BTL4	Analyzing
5	Discuss the term aborted state.	BTL2	Understanding
6	Summarize the properties of transaction.	BTL2	Understanding
7	What are the different modes of lock?	BTL1	Remembering
8	Assess about Serializability. How it is tested?	BTL5	Evaluating
9	Show the time stamps associated with each data item.	BTL3	Applying
10	Demonstrate recoverable schedule with suitable example.	BTL3	Applying
11	Recommend the need of shadow paging.	BTL5	Evaluating
12	Generalize the type of locking needed for insert and delete operations.	BTL6	Creating
13	Define deadlock.	BTL1	Remembering
14	Design your own example to illustrate cascaded rollback.	BTL6	Creating
15	List the phases of two-phase locking protocol	BTL1	Remembering
16	Examine the use of lock compatibility matrix.	BTL3	Applying
17	List the types of serializability.	BTL1	Remembering
18	Give the states of transaction.	BTL2	Understanding
19	Differentiate strict two-phase locking protocol and rigorous two-phase locking protocol.	BTL4	Analyzing
20	Define upgrade and downgrade.	BTL1	Remembering
21	Evaluate what is meant by concurrency control?	BTL4	Analyzing
22	Give an example of two phase commit protocol.	BTL2	Understanding
23	Show the four conditions for deadlock.	BTL5	Evaluating
24	Brief about cascading rollback.	BTL3	Applying

PART-B

1	(i) Describe the ACID Properties of a transaction. (8) (ii) What benefit does rigorous two-phase locking provide? Show how does it compare with other forms of two-phase locking? (8)	BTL1	Remembering
2	(i)What is concurrency control? Illustrate the two-phase locking protocol with an example. (8)	BTL3	Applying

	(ii)What is conflict serializability and view serializability? Illustrate with an example. (8)		
3	Write a short note on: i) Transaction concept. (8) (ii) Deadlock. (8)	BTL1	Remembering
4	(i)What is deadlock? How does it occur? (8) (ii)How transactions are to be written to Avoid deadlock and guarantee correct execution. Illustrate with suitable example. (8)	BTL3	Applying
5	(i)What is concurrency control? How is it implemented in DBMS? (8) (ii)Generalize with a suitable example. (8)	BTL6	Creating
6	(i)What is two-phase locking? Explain it with suitable example. (8) (ii)Assess on how it guarantees serializability. Explain with suitable example. (8)	BTL5	Evaluating
7	What is Concurrency? Explain it in terms of locking mechanism and two-phase Commit Protocol. (16)	BTL4	Analyzing
8	Explain Two Phase Commit and Three-Phase Commit Protocols. (16)	BTL4	Analyzing
9	i) Illustrate two phase locking protocol with an example. (8) ii) Outline deadlock handling mechanisms. (8)	BTL1	Remembering
10	(i)Differentiate strict two-phase locking protocol and rigorous two-phase locking protocol. (8) (ii)How the time stamps are implemented? Explain. (8)	BTL2	Understanding
11	(i)When is a transaction said to be deadlocked? (8) (ii)Explain the deadlock prevention methods with an example? (8)	BTL4	Analyzing
12	(i) Describe about the deadlock prevention schemes. (8) (ii)With a neat Sketch explain the states of a transaction. (8)	BTL2	Understanding
13	(i) Describe about deadlock detection. (8) (ii)Define the term Recoverable schedule and Cascade less schedules. (8)	BTL1	Remembering
14	Discuss the violations caused by each of the following: dirty read, non-repeatable read and phantoms with suitable example. (16)	BTL2	Understanding
15	Discuss view serializability and conflict serializability. (16)	BTL2	Understanding
16	What is concurrency? Explain in terms of locking mechanisms and two phase commit protocol. (16)	BTL3	Applying
17	Elaborate the SQL facilities for concurrency and recovery. (16)	BTL4	Analyzing

UNIT IV IMPLEMENTATION TECHNIQUES

RAID – File Organization – Organization of Records in Files – Indexing and Hashing – Ordered Indices – B+ tree Index Files – Static Hashing – Dynamic Hashing – Query Processing Overview .– Algorithms for SELECT and JOIN operations.

PART-A

Q.No	Question	Level	Competence
1.	Point out the ordered indices with example.	BTL4	Analyzing

2.	Write about B+ tree index file.	BTL1	Remembering
3.	Illustrate hash indexing.	BTL3	Applying
4.	Define seek time.	BTL1	Remembering
5.	Assess the factors to be considered for the evaluation of indexing and hashing techniques.	BTL5	Evaluating
6.	Define mirroring.	BTL1	Remembering
7.	Discuss about Dense Index.	BTL2	Understanding
8.	What is an index?	BTL2	Understanding
9.	Differentiate BTree and B+Tree Index.	BTL4	Analyzing
10.	Distinguish between fixed length record and variable length records?	BTL2	Understanding
11.	Show the advantages and disadvantages of RAID Level 3.	BTL3	Applying
12.	What are the factors to be taken into account when choosing a RAID level?	BTL2	Understanding
13.	Mention all the operations of files.	BTL1	Remembering
14.	Prepare the need for Query Optimization.	BTL6	Creating
15.	Define Primary index and Secondary Index.	BTL1	Remembering
16.	When is it preferable to use a dense index rather than a sparse index?	BTL2	Understanding
17.	Analyze query processing.	BTL3	Applying
18.	Examine about query evaluation plan.	BTL1	Remembering
19.	Differentiate Static Hashing and Dynamic Hashing.	BTL5	Evaluating
20.	What mechanisms applied to avoid collision during hashing?	BTL4	Analyzing
21.	Develop the procedure to reduce the occurrences of bucket overflows in a hash file organization.	BTL6	Creating
22.	Analyze about garbage collection?	BTL3	Applying
23.	Access what is hardware and software RAID systems.	BTL5	Evaluating
24.	Discuss about replication transparency.	BTL2	Understanding
PART – B			
1.	(i)Describe B+ tree in detail. (8) (ii)How do you represent leaf node of a B+ tree of order p? (8)	BTL1	Remembering
2.	(i) Describe the ordered indices with example. (10) (ii)Describe the different methods of implementing variable length records. (6)	BTL2	Understanding

3.	Examine about RAID system. How does it improve performance and reliability? Discuss the level 3 and level 4 of RAID. (16)	BTL1	Remembering
4.	Demonstrate the structure of B+ tree and give the algorithm for search in the B+ tree with example. (16)	BTL3	Applying
5.	Give a detailed description about Query processing and Optimization. Explain the cost estimation of Query Optimization. (16)	BTL1	Remembering
6.	Describe the different types of file organization. Explain using a sketch of each of them with their advantages and disadvantages.	BTL2	Understanding
7.	Explain about static and dynamic hashing with an example. (16)	BTL2	Understanding
8.	i) Show the various levels of RAID systems. (8) ii) Why data dictionary storage is important. (8)	BTL3	Applying
9.	i) With simple algorithms, define the computing of nested loop join and block nested loop join. (8) ii) Sketch and concise the basic steps in query processing. (8)	BTL1	Remembering
10.	Analyze about the index schemas used in databases. (16)	BTL4	Analyzing
11.	(i)Analyze about the B+ Tree file organization in detail. (6) (ii) Identify a B+ tree to insert the following key elements (order of the tree is 3) 5, 3, 4, 9, 7, 15, 14, 21, 22, 23. (10)	BTL4	Analyzing
12.	Examine the algorithms for SELECT and JOIN operations. (16)	BTL4	Analyzing
13.	(i)Explain in detail about optimization of disk block access. (8) (ii)Generalize about mirrored (redundancy) RAID levels. (8)	BTL6	Creating
14.	(i) Illustrate Indexing techniques with suitable examples. (8) (ii) Write short notes on Hashing. (8)	BTL2	Understanding
15.	Since indices speed query processing, why might they not be kept on several search keys? List as many reasons as possible. (16)	BTL5	Evaluating
16.	Create B tree and B^+ tree to insert the following key values (the order of the tree is three) 32, 11, 15, 13, 7, 22, 15, 44, 67, 4. (16)	BTL6	Creating
17.	The following key values are organized in an extendable hashing technique. 1 3 5 8 9 12 17 28 show the extendable hash structure for this file if the hash function is h(X) = X mod 8 and buckets can hold three records. (16)	BTL5	Evaluating

UNIT - V ADVANCED TOPICS

Distributed Databases: Architecture, Data Storage— Object–based Databases: Object Database Concepts, Object–Relational features, ODMG Object Model, ODL, OQL — XML Databases: XML Hierarchical Model, DTD, XML Schema, XQuery — Information Retrieval: IR Concepts, Retrieval Models, Queries in IR systems.

PART A

Sl.No	Questions	Level	Competence
1.	What is a distributed database system?	BTL 1	Remember
2.	Define the term "distributed database architecture"	BTL 2	Understand
3.	List out the key issues in distributed database management systems?	BTL 2	Understand
4.	What is a distributed transaction?	BTL 1	Remember
5.	What is the advantages of a distributed database over a centralized one?	BTL 1	Remember
6.	Define the term "distributed query processing" in distributed databases.	BTL 2	Understand
7.	List out the CAP theorem in distributed databases?	BTL 2	Understand
8.	What is an object-oriented database?	BTL 1	Remember
9.	What is the ODMG object model?	BTL 1	Remember
10.	Write about Retrieval Models.	BTL 4	Analyze
11.	List the advantages of OODB.	BTL 1	Remember
12.	Differentiate the object-oriented databases and relational databases?.	BTL 4	Analyze
13.	State the XML hierarchical model.	BTL 1	Remember
14.	How is object identity managed in an object database?	BTL 6	Create
15.	What are the advantages of using object-relational databases	BTL 1	Remember
16.	Define an XML database?	BTL 2	Understand
17.	Give Document Type Definition (DTD) in XML?	BTL 3	Apply
18.	What is the purpose of XQuery in XML databases	BTL 2	Understand
19.	What is Information Retrieval (IR)?	BTL 1	Remember
20.	Define the Boolean model in Information Retrieval?	BTL 1	Remember
21.	What is the significance of query expansion in IR?	BTL 2	Understand
22.	Write the different types of document indexing in IR systems?	BTL 6	Create
23.	How does the Latent Semantic Indexing (LSI) model help in IR?	BTL 6	Create
24.	Write the vector space model in IR.	BTL 3	Apply
	PART B		
1.	Design a distributed database for a multi-office company and analyze how fragmentation, replication, and concurrency control affect performance.(16)	BTL 4	Analyzing
2.	Design a library management system using an object-oriented database and evaluate its advantages over a relational model. (16)	BTL3	Applying
3.	Compare object-oriented and object-relational databases and synthesize improvements for relational systems. (16)	BTL 4	Analyzing
4.	Demonstrate in detail about: (i)Information Retrieval. (8) (ii)Transaction processing. (8)	BTL3	Applying
5.	Differentiate Document Type Definition and XML schema with suitable example. (16)	BTL1	Remembering
6.	i) Point out the usage of OQL, the DMG's query language. (8) ii) Analyze the methods to store XML documents. (8)	BTL 4	Analyzing

7.	Describe about object database concepts. (16)	BTL3	Applying
8.	Discuss whether Crawling and indexing is more recommended than Relevance ranking in information retrieval. Justify your answer.(16)	BTL2	Understanding
9.	i)Compare homogeneous and heterogeneous databases. (8) ii)Explain about distributed data storage. (8)	BTL 4	Analyzing
10.	Explain in detail about Ranking Using TF-IDF. (16)	BTL 4	Analyzing
11.	Summarize about OQL with your own example. (16)	BTL5	Evaluating
12.	Generalize your view about the hierarchical data model in XML. (16)	BTL6	Creating
13.	Suppose that you have been hired as a consultant to choose a database system for your client's application. For each of the following applications, state what type of database system (relational, persistent programming language–based OODB, object relational; do not specify a commercial product) you would recommend. Justify your recommendation and Generalize your view. (i) A computer-aided design system for a manufacturer of airplanes.(6) (ii) A system to track contributions made to candidates for public office.(5) (iii) An information system to support the making of movies.(5)	BTL6	Creating
14.	Give XML representation of University database system and also explain about DTD and XML schema. (16)	BTL5	Evaluating
15.	(i)Discuss on distributed transaction. (8) (ii)Examine discretionary access control based on granting and revoking privileges. (8)	BTL2	Understanding
16.	(i)Write the features of Object relation with example. (8) (ii)Examine XML in detail. (8)	BTL3	Applying
17.	Analyze about the DTD for an XML representation of the following nested-relational schema. Emp = (ename, ChildrenSetsetof(Children), SkillsSetsetof(Skills)) Children = (name, Birthday) Birthday = (day, month, year) Skills = (type, ExamsSetsetof(Exams)). Exams = (year, city)	BTL4	Analyzing