

SRMVALLIAMMAI ENGINEERING COLLEGE
(An Autonomous Institution)

SRM Nagar, Kattankulathur-603203

**DEPARTMENT OF COMPUTER SCIENCE AND
ENGINEERING**

QUESTION BANK



I SEMESTER – M.E.CSE
CP3162–DATABASE PRACTICES

Regulation– 2023

Academic Year 2026 – 2027 (Odd Semester)

Prepared by

Dr. A. VIDHYA, AP-Sr.G/CSE



SRM VALLIAMMAI ENGINEERING COLLEGE
(An Autonomous Institution)

SRM Nagar, Kattankulathur-603203.



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
QUESTION BANK

SUBJECT : CP3162–DATABASE PRACTICES

SEM/YEAR: I Semester/IYear

UNIT I RELATIONAL DATA MODEL

Entity Relationship Model – Relational Data Model – Mapping Entity Relationship Model to Relational Model – Relational Algebra – Structured Query Language – Database Normalization.

PART- A

Q. No.	Questions	BT Level	Competence
1	Define database management system.	BTL1	Remembering
2	What is database management system?	BTL1	Remembering
3	Discuss about 2NF.	BTL2	Remembering
4	What is an entity relationship model?	BTL1	Remembering
5	Discuss about Relational Data Model.	BTL2	Remembering
6	List the purpose of Database Management Systems?	BTL1	Remembering
7	Discuss about Relational Algebra.	BTL2	Understanding
8	List out the operations of relational algebra.	BTL1	Remembering
9	List out the disadvantages of file processing systems.	BTL1	Remembering
10	What is relationship? Give examples.	BTL2	Understanding
11	Define single valued and multivalued attributes.	BTL1	Remembering
12	What are stored and derived attributes?	BTL1	Remembering
13	Define the terms Entity set & Relationship set	BTL1	Remembering
14	Define the terms of Database schemas.	BTL1	Remembering
15	Define instance and schema.	BTL1	Remembering
16	What are the advantages of using a DBMS?	BTL2	Understanding
17	List any eight applications of DBMS.	BTL1	Remembering
18	Define null values.	BTL1	Remembering
19	Define the terms DDL and DML.	BTL1	Remembering
20	What are the two types of participation constraint?	BTL2	Understanding
21	Define weak and strong entity sets.	BTL1	Remembering
22	What does the cardinality ratio specify?	BTL2	Understanding
23	What is meant by the degree of relationship set?	BTL2	Understanding
24	What are composite attributes?	BTL2	Understanding

PART- B

1	List out the operations of relational algebra with suitable example.(16)	BTL3	Applying
2	(i) List the disadvantages of file system over database.(8) (ii) List the operations of relational algebra with suitable example.(8)	BTL3	Applying
3	Examine about (i) data model (8) (ii) Mapping cardinalities(8)	BTL4	Analyzing
4	Explain the following with example. DML (8) DDL(8)	BTL4	Analyzing

5	Explain the select, project, Cartesian product operations in relational algebra with example.(16)	BTL3	Applying
6	Develop an E-R diagram for a car insurance company whose customers own one or more cars each. Each car has associated with it zero to any number of recorded accidents. Each insurance policy covers one or more cars, and has one or more premium payments associated with it. Each payment is for a particular period of time, and has an associated due date, and the date when the payment was received. (16)	BTL6	Creating
7	Briefly discuss about the functional dependency concepts. (16)	BTL4	Analyzing
8	Write a short note on. (i) Data Model and its Types.(8) (ii) E-R Diagram for Banking System.(8)	BTL3	Applying
9	Show the steps involved in the ER- to Relational mapping in the process of relational database design.(16)	BTL4	Analyzing
10	What is Normalization? And Discuss First normal form, Second normal form and third normal form with an example.(16)	BTL3	Applying
11	Discuss about First normal form, Second normal form and third normal form with an example.(16)	BTL3	Applying
12	Design an E-R diagram for keeping track of the exploits of your favorite sports team. You should store the matches played, the scores in each match, the players in each match and individual player statistics for each match. Summary statistics should be model leads derived attributes.(16)	BTL6	Creating
13	Briefly discuss about the functional dependency concepts.(16)	BTL3	Applying
14	Briefly discuss about the mapping hierarchical entity.(16)	BTL4	Analyzing
15	Discuss about various join operations with suitable example	BTL3	Applying
16	List the disadvantages of file system over database.(8) Discuss in detail about relational model.(8)	BTL3	Applying
17	What are the key objectives of database normalization, and how do they improve database design?	BTL4	Analyzing

UNIT- II DISTRIBUTED DATABASES, ACTIVE DATABASES AND OPEN DATABASE CONNECTIVITY

Distributed Database Architecture – Distributed Data Storage – Distributed Transactions – Distributed Query Processing – Distributed Transaction Management – Event Condition Action Model – Design and Implementation Issues for Active Databases – Open Database Connectivity.

PART-A

Q. No.	Questions	BT Level	Competence
1	Give the definition for Distributed Database Systems.	BTL1	Remembering
2	Discriminate the meaning of homogenous and heterogeneous DDBMS.	BTL2	Understanding
3	What are the types of Distributed Database?	BTL1	Remembering
4	What are the types of homogenous Distributed Database?	BTL1	Remembering
5	What are the types of heterogeneous Distributed Database?	BTL1	Remembering
6	What are the two different client server architecture?	BTL1	Remembering
7	What are the design alternatives for the tables in a DDBMS ?	BTL2	Understanding
8	What is meant by fully replicated in the design alternative?	BTL1	Remembering
9	What is meant by mixed distribution?	BTL1	Remembering
10	Define prepared response.	BTL1	Remembering
11	Define distributed transaction management	BTL1	Remembering

12	What is meant by window of vulnerability	BTL2	Understanding
13	Discuss about one phase Locking protocol	BTL2	Understanding
14	List the phases of two phase locking protocol	BTL1	Remembering
15	List out the techniques of check pointing.	BTL1	Remembering
16	Discuss about fuzzy check pointing.	BTL2	Understanding
17	Define ECA rule	BTL1	Remembering
18	Give the states of transaction.	BTL1	Remembering
19	List out the types of triggers.	BTL1	Remembering
20	What is ODBC?	BTL1	Remembering
21	Write the features of active database?	BTL2	Understanding
22	Define active database.	BTL1	Remembering
23	What is the use of consistent check point?	BTL2	Understanding
24	Write short notes on query processing in distributed DBMS?	BTL2	Understanding

PART– B			
1	Demonstrate in detail about: (i) Information Retrieval. (8) (ii) Transaction processing. (8)	BTL3	Applying
2	(i) Discuss on distributed transaction. (8) (ii) Examine discretionary access control based on granting and revoking privileges. (8)	BTL4	Analyzing
3	i) Discuss the approaches to store relations in distributed database. (8) ii) Discuss how the effectiveness of retrieval is measured? (8)	BTL3	Applying
4	i) Compare homogeneous and heterogeneous databases. (8) ii) Explain about distributed data storage. (8)	BTL 4	Analyzing
5	Explain about Client server architecture and peer to peer architecture for DDBMS(16)	BTL3	Applying
6	Discuss in detail about flat & distributed transactions (16)	BTL2	Understanding
7	What are Distributed Transactions and discuss about DML and DDL transactions(16)	BTL2	Understanding
8	Discuss in detail about Session trees for Distributed Transactions(16)	BTL3	Applying
9	Discuss in detail about two-phase commit mechanism(16)	BTL3	Applying
10	Discuss on distributed recovery methods (16)	BTL3	Applying
11	Explain about distributed DBMS architecture (16)	BTL4	Analyzing
12	Discuss about the distribution design alternatives for the tables in a DDBMS.	BTL4	Analyzing
13	Write a case study about distributed transaction Processing	BTL5	Evaluating
14	Discuss in detail about Distributed Commit Protocols	BTL4	Analyzing
15	Explain about locking based concurrency control protocols	BTL4	Analyzing
16	Discuss in detail about active database and also explain about the each types of trigger.	BTL5	Evaluating
17	Explain about the ODBC Architecture in detail.	BTL3	Applying

UNIT - III XMLDATABASES

Structured, Semi structured, and Unstructured Data – XML Hierarchical Data Model – XMLDocuments – Document Type Definition – XML Schema – XML Documents and Databases –XMLQuerying–XPath–XQuery

PART– A

Q. No.	Questions	BTLevel	Competence
1	Define Structured Data.	BTL1	Remembering
2	What is Semi-Structured Data?	BTL1	Remembering
3	Explain Unstructured Data with an example.	BTL2	Understanding
4	What is meant by data-centric XML documents?	BTL1	Remembering
5	Define DTD.	BTL1	Remembering
6	What is meant by unstructured Data?	BTL1	Remembering
7	Write about a columnar data store?	BTL2	Understanding
8	Give some examples for non relational databases..	BTL1	Remembering
9	Write notes on object data stores?	BTL2	Understanding
10	What are the uses of hybrid XML documents	BTL2	Understanding
11	What is schemaless XML documents?	BTL1	Remembering
12	Define DOM.	BTL1	Remembering
13	How to extracting XML documents from relational databases	BTL2	Understanding
14	Write about basic syntax of XML.	BTL2	Understanding
15	What are the difference between HTML and XML?	BTL2	Understanding
16	List out the XML query Languages.	BTL1	Remembering
17	Evaluate addition of two numbers using XML.	BTL2	Understanding
18	Write the basic syntax of a DTD?	BTL2	Understanding
19	Create the XML code for display a greeting message.	BTL1	Remembering
20	Define XSL.	BTL1	Remembering
21	What is a simple type in XML Schema?	BTL1	Remembering
22	What is XQuery?	BTL1	Remembering
23	What is the difference between XPath and XQuery?	BTL2	Understanding
24	What is FLWOR in XQuery?		

PART– B

1	Differentiate Document Type Definition and XML schema with suitable example(16)	BTL4	Analyzing
2	Discuss in detail about the XML languages.(16)	BTL4	Analyzing
3	Illustrates and explain in detail about XML Document Type Definition (16)	BTL3	Applying
4	Discuss in detail about the XML hierarchical data model with suitable example.	BTL4	Analyzing
5	Explain the following i. Structured Data (6) ii. Unstructured Data(6) iii. Semi structured Data(4)	BTL4	Analyzing
6	List out the important difference between structured data, semi-structured data and unstructured Data.	BTL3	Applying
7	Explain the following (i) Document Data Stores (ii) Key/Value Data Stores	BTL5	Evaluating

8	Explain the following (i) Graph Data Stores (ii) Time series data stores	BTL5	Evaluating
9	Explain the following (i) Object data stores (ii) External index data stores	BTL5	Evaluating
10	Discuss in detail about storing and extracting XML document from database	BTL3	Applying
11	How to creating hierarchical XML views over flat or graph based data in detail.	BTL4	Analyzing
12	Converting a graph with cycles into hierarchical structures with suitable example.	BTL4	Analyzing
13	How can XML be used for configuration files? Discuss the advantages and disadvantages.	BTL4	Analyzing
14	What tools and technologies can be used for processing XML documents? Discuss their functionalities.	BTL4	Analyzing
15	Explain the role of namespaces in XML and provide an example of their use.	BTL4	Analyzing
16	What are the best practices for designing XML Schemas? Discuss with examples.	BTL4	Analyzing
17	Discuss the role of XML in web services and data interchange formats.	BTL4	Analyzing

UNIT - IV NOSQLDATABASESANDBIGDATASTORAGESYSTEMS

NoSQL–CategoriesofNoSQLSystems–CAPTheorem–Document-BasedNoSQLSystemsand MongoDB – MongoDB Data Model – MongoDB Distributed Systems Characteristics – NoSQLKey-Value Stores – DynamoDB Overview – Voldemort Key-Value Distributed Data Store –WideColumnNoSQLSystems–HbaseDataModel–HbaseCrudOperations– HbaseStorageandDistributed System Concepts – NoSQL Graph Databases and Neo4j – Cypher Query LanguageofNeo4j–BigData–MapReduce–Hadoop–YARN.

PART– A

Q. No.	Questions	BTLevel	Competence
1	What is NoSQL Database?	BTL1	Remembering
2	What are the categories of NoSQL?	BTL1	Remembering
3	What is meant by Consistency?	BTL1	Remembering
4	What is meant by Partition Tolerant?	BTL1	Remembering
5	List out the ACID Properties of RDBMS.	BTL1	Remembering
6	What is meant by availability?	BTL1	Remembering
7	Write short notes about the CAP Theorem?	BTL2	Understanding
8	Define Momgo db NoSQL Database.	BTL1	Remembering
9	What is Embedded Data Model?	BTL1	Remembering
10	What is a key-value store?	BTL1	Remembering
11	What are the features of key-value database	BTL1	Remembering
12	List out the advantages of Key-Value Databases.	BTL1	Remembering
13	What is sharding?	BTL1	Remembering
14	List out the popular key-value database.	BTL1	Remembering
15	What is DynamoDB?	BTL1	Remembering
16	Write short notes on Voldemort Key-Value Distributed Data Store	BTL2	Understanding
17	Write the difference between HBase and HDFS?	BTL2	Understanding
18	Write some features of HBase?	BTL2	Understanding
19	What is HDFS?	BTL2	Understanding
20	What is a NoSQL Graph Database?	BTL1	Remembering
21	What are the components available in graph database?	BTL1	Remembering
22	List out the types of Graph Database.	BTL2	Understanding
23	Write the advantages of Neo4j	BTL1	Remembering
24	What is Big Data?	BTL2	Understanding
PART– B			
1	Discuss in detail about the categories of NoSQL?	BTL4	Analyzing

2	Discuss in detail about the CAP Theorem in DBMS	BTL4	Analyzing
3	Discuss in detail about the MongoDB's top five technical features	BTL4	Analyzing
4	Explain about the Voldemort Key-Value Distributed Data Store	BTL3	Applying
5	Explain about the Wide Column NoSQL Systems	BTL3	Applying
6	What is HBase? Discuss in detail about the Hbase Data Model	BTL4	Analyzing
7	Discuss in details about the HBase Architecture	BTL4	Analyzing
8	Discuss in detail about the NoSQL Graph Database	BTL4	Analyzing
9	Write notes on Neo4j Property Graph Data Model and Neo4j Query Cypher Language	BTL3	Applying
10	Discuss about the characteristics and advantages of Bigdata	BTL4	Analyzing
11	Discuss about the MapReduce and How MapReduce Works?	BTL4	Analyzing
12	Explain about Hadoop Architecture and also discuss about the Modules of Hadoop.	BTL4	Analyzing
13	Explain about Hadoop YARN Architecture	BTL5	Evaluating
14	Discuss in detail about the Document based NoSQL	BTL5	Evaluating
15	Write notes on embedded data model and Normalized Data Models	BTL4	Analyzing
16	Discuss about the features, usecases, advantages and disadvantages of key-value databases	BTL5	Evaluating
17	What is YARN in the Hadoop ecosystem, and how does it enhance resource management?	BTL4	Analyzing

UNIT V DATABASE SECURITY

Database Security Issues – Discretionary Access Control Based on Granting and Revoking Privileges– Mandatory Access Control and Role-Based Access Control for Multilevel Security–SQL Injection – Statistical Database Security – Flow Control – Encryption and Public Key Infrastructures – Preserving Data Privacy – Challenges to Maintaining Database Security –Database Survivability–Oracle Label-Based Security

PART- A

Q. No.	Questions	BTLevel	Competence
1	What is Database Security?	BTL1	Remembering
2	What are the four typical classes of certificate?	BTL1	Remembering
3	What are the role of Registration Authority (RA)?	BTL2	Understanding
4	What is Certificate Management System (CMS)?	BTL1	Remembering
5	What is an EPF file?	BTL1	Remembering
6	Define Anonymization.	BTL1	Remembering

7	What is Randomization?	BTL2	Understanding
8	What are the conventional methods of Anonymization?	BTL1	Remembering
9	What is Multidimensional Sensitivity Based Anonymization (MDSBA)	BTL2	Understanding
10	Write the Challenges to Maintaining Database Security?	BTL1	Remembering
11	What is meant by Intellectual property rights?	BTL1	Remembering
12	What is OLS?	BTL1	Remembering
13	What is the importance of regular security updates in database systems?	BTL2	Understanding
14	What is the significance of user authentication?	BTL2	Understanding
15	What are access control lists (ACLs)?	BTL1	Remembering
16	What is Oracle Label-Based Security?	BTL2	Understanding
17	What are some common challenges to maintaining database security?	BTL2	Understanding
18	What is flow control in database security?	BTL1	Remembering
19	What is SQL Injection?	BTL1	Remembering
20	Describe Role-Based Access Control (RBAC).	BTL2	Understanding
21	How do multilevel security systems work?	BTL2	Understanding
22	Explain the concept of granting and revoking privileges.	BTL2	Understanding
23	What is a Public Key Infrastructure (PKI)?	BTL1	Remembering
24	What role does auditing play in database security?	BTL2	Understanding
PART- B			
1	Discuss in detail about common database security issues	BTL4	Analyzing
2	Explain about the Discretionary Access Control Based on Granting and Revoking Privileges	BTL5	Evaluating
3	Discuss in detail about the SQL Injection.	BTL4	Analyzing
4	Discuss in detail about the Public Key Infrastructure (PKI)	BTL4	Analyzing
5	What are the Challenges to Maintaining Database Security?	BTL3	Applying
6	Discuss about the Oracle Label Security	BTL4	Analyzing
7	What are the main components of Oracle Label Security?	BTL3	Applying
8	Who should consider Oracle Label Security? and What can Oracle Label Security do for your security needs?	BTL3	Applying
9	Discuss about the Data distribution technique	BTL4	Analyzing
10	Write notes on Access Control Policies for E-Commerce and the Web	BTL3	Applying
11	Illustrate Granting and Revoking of Privileges with suitable example	BTL4	Analyzing
12	Write notes on Mandatory Access Control and Role-Based Access Control for Multilevel Security	BTL4	Analyzing
13	Discuss in detail about the Role-Based Access Control	BTL5	Evaluating
14	Discuss about Statistical Database Security	BTL6	Creating
15	Discuss in detail about the Encryption and Public Key Infrastructures	BTL4	Analyzing
16	Discuss in detail about the Digital Certificate and Certifying Authority (CA)	BTL4	Analyzing
17	What is Oracle Label-Based Security (LBAC), and how does it enhance multi-level security in databases?	BTL5	Evaluating