DataBase Management System
BCA - II Year (204)
Question Bank By Neelam Sunda

Part -1

1) What is database Management System? Discuss in detail the advantages and disadvantages of using a database system?

2) Discuss the main characteristics of Database approach and how it is differs from traditional file system?

3) What is data Abstraction? Why Abstraction is needed?

4) What are Instances and Schemas? Define different type of Schema?

5) How many type of Database User's? Explain each?

6) What is Data Model? Define the different type of Data models?

7) What do you mean by Database Independence?

8) Explain the distinction among the term Primary key, Candidate key and Super key?

9) Compare and Contrast the following:

i) Data and Information

ii) Primary key and foreign key

iii) Physical and Logical data independence

10) What are the five main functions of Database Administrator?

11) What is Data Model? Define the different type of Data models?

12) Explain the Relational model proposed by B.C.Codd, list the rules of Codd's for a relational database?

13) Define the Network Model? What are the advantages and disadvantages of Network Model?

14) What are the concepts of Object-oriented model? Explain each?

15) Write short notes of the following:

i) Integrity constraints

ii) Database Administrator

iii) Data dictionary

iv) Metadata

v) Instance and Schema

vi) Data abstraction

vii) Relational Model

Part 2

1) What is Object Oriented model? What are the main features Object Oriented Database Model?

2) Explain E-R model and also defines terms Entities and Attributes?

3) Discuss Different type of user- friendly interfaces and the type of user who use each?

4) How many types of Database languages? Explain DDL and DML?

5) Explain the procedural and non-procedural languages?

6) Who is DBA? What are the responsibilities of DBA?

7) What are entity and attributes? How many type of attributes use in Relational model?

8) What do you mean by mapping cardinalities? Explain each?

9) Explain the rules which are given by 'Codd'?

10) What are keys? How many type of keys used in Database? Explain each?

11) Describe the architecture of DBMS?

12) What do you mean by multivalued attributes?

13) What are tuples and Domain in relational model?
14) What is the difference between DBMS and RDBMS?
15) What are the advantages of Object-Oriented Data Model?

Part 3

1) What do you mean by Functional dependency? Describe the use of Functional dependency in normalization of database?
2) What is Normalization? Describe the purpose of normalizing data?
3) How many types of Functional dependencies? Explain each with an example?
4) Describe the different Normal forms of database? Explain the steps to normalize database up to BCNF ?
5) What is Decomposition? What is the purpose of Decomposition in database?
6) What is lossless join Decomposition? Explain with an Example?
7) Suppose that we decompose the schema R=(A,B,C,D.E)in to(A,B,C)and (A,D,E)
Show that this decomposition is a Lossless-Join decomposition if the following set of Functional dependencies holds— F={ A->BC, CD->E,B->D,E->A)
8) Consider the schema R=(V,W,X,Y,Z) and suppose the following Functional dependencies holds— F=(Z->V, W->Y,XY->Z,V->WX)
State whether the following decomposition of schema R is Lossless-Join Decomposition?
9) Write short notes on the following—
i) Functional Dependency
ii) Decomposition
iii) Lossless-Join decomposition
iv) 3N
v) 4NF
vi) BCNF
10) Consider a table and normalize that up to BCNF?
11) What is Multivalued functional Dependency? Explain with an example?
12) write the rules which are used in Functional dependency?
13) Let a relation R=(A,B,C,G,H,I) and set of Functional dependencies are
F=(A->B, A->C, CG->H, CG->I, B->H) holds.
Show that the following dependencies hold—
(i) A->H
(ii) CG->HI
(iii) AG->I
14) What are the Integrity Constraints? Explain each?
15) Write short notes of the following—
i) Referential integrity
ii) Entity Integrity

Part 4

1) What is Object Oriented model? what are the main features Object oriented Database model?
2) What are the advantages of Object-Oriented Database System? How it is advantageous over RDBMS?
3) What is Knowledge-Based System? with the help of example explain that how it is different from a conventional database?
4) What is Client-Server model? Explain two tier and three tier structure of Client-Server model?
5) What are the main features of Client -Server model? Write the use of Client-Server model.
6) What is Client-server computing? Discuss the components of client-server model?
7) What is the need of distributed database? Discuss the structure of Distributed database

management system?

8) What is Distributed database management system? what are the advantages of distributed System?

9) Explain Distributed Data Storage.

10) What is fragmentation? What is horizontal fragmentation and vertical fragmentation? Explain each with an example?

11) What is a homogeneous distributed database and heterogeneous distributed database?

12) What is data transparency? What are the various forms of data transparency?

13) Write short notes of the following—-

i) Fragmentation

ii) Replication

iii) Transparency

iv) Inheritance

v) Global and Local queries

14) What are the advantages and disadvantages of distributed system over centralized system?

15) What is the system structure of Distributed Database Management system? Explain the role of transaction manager and Transaction coordinator?

DBMS Question Bank Part 2

UNIT – 1

1. What is Database Management System? Explain the features of Data Base Management System.

2. Discuss the main characteristics of the database approach and how it is differs from file processing system

3. Explain the Data Models in DBMS. Describe Advantages and Disadvantages of DBMS.

4. What are the various functional components of a database system? Draw the overall structure of DBMS

5. What do you understand by data abstraction? Discuss the three levels of data abstraction.

6. What is data independence? Explain the difference between logical data independence and physical data independence?

7. What is difference between Data processing and Data management System?

8. What do you understand by DBA? Explain the responsibilities of DBA?

9. What is Data Base Management System? Explain the Architecture of DBMS?

10. Describe Database Languages DDL and DML and DCL.

UNIT – 2

1. What is Entity Relationship Model? Explain its symbols using suitable example.

2. Explain the followings terms in respect to E-R Diagram:-

   (a) Binary versus Ternary relationship

   (b) Weak Entity Set

   (c) Single valued or Multi valued Attributes

   (d) Relational Data Models

3. Explain the following terms in respect to E-R diagram with suitable examples:-

   (a) Entity and Attributes

   (b) Relationship and Relationship sets

   (c) Key Constriants.

4. Describe the Candidate Key, Primary Key and super key? How Primary Key is different from foreign key.

5. Draw an E-R diagram for a Banking enterprise and University management system.

6. Draw an E-R diagram for Airline Schema and Library Management System.

7. Explain the Hierarchical Data Base Structure and Network Data Base Model.

8. Create an E-R Model Using following data:-

   Consider the following tables:
   Employee (Emp_no, Name, Emp_city, Emp Address) Company (Emp_no, Company_name, Salary, department)

9.   What is E-R modeling? Explain the several types of the relationship in E-R Model.

10.   Describe the Data Manipulation in a Network Database and Draw an E-R Diagram for Hospital Management.

UNIT – 3

1. What is Relational algebra? Explain various relational algebra operators with suitable example.

2. Differentiate between Cartesian product and Natural join operations used in relational algebra.

3. Describe the SELECT and PROJECT operation using example in relational algebra.

4. Describe the UNION and INTERSECTION Operation using suitable example.

5. Describe the Circumstances when you would use each of the following relational Algebra Operations

   a) SELECT

   b) PROJECT

   c) JOIN

   d) DIVISION

6. What is Normalization? Explain the various Normalization Techniques with suitable example.

7. Write short notes on followings

(a) RENAME operator

(b) DIFFERENCE

(C) CARTESIAN- PRODUCT

8. Define the Normalization? Explain 1NF, 2NF, 3NF and BCNF with simple example.

9. What is Functional Dependency? Explain normalization techniques using functional dependencies with example.

10. Describe the Loss Less Join and Preserving decomposition Dependency.

UNIT – 4

1. What do you understand by backup and recovery? How you can recover data from catastrophic failures?

2. Describe the concurrency control technique and Recovery technique?

3. Define the locking techniques for concurrency control. Distinguish between Shared and Exclusive locks.

4. Define two phase locking and distinguish between static, dynamic locking and strict two phase locking.

5. What are different types of locks? Distinguish between them.

6. What is database recovery? Why backups are important in transaction management?

7. Distinguish between rigorous locking and strict two phase locking.

8. What are the concurrency control schemes? Describe the Multi-version Concurrency Control Technique.

9. What do you mean by rollback in transaction? Explain the Granularity of Data Items.

10. Define the security and authorization in data base. Explain the Time Stamp protocol.

UNIT – 5

1. What is meant by the term 'Client Server Architecture' and what are advantages of this approach?

2. Describe that what conditions might a Distributed database System not function as well as a centralized Database System.

3. What do you understand by Distributed Data Base system? Describe the types of Distributed Data Base System.

4. Describe the advantages and disadvantages of distributed DBMS.

5. Describe the Data Fragmentation. Explain functions of distributed DBMS.

6. What is Replication and Allocation in distributed Data Base Design?

7. Consider the following tables:
Employee (Emp_no, Name, Emp_city)

Company (Emp_no, Company_name, Salary)

(a) Write a SQL query to display Employee name and company name.

(b) Write a SQL query to display employee name, employee city, company name and salary of all the employees whose salary >20000

(c) Write a query to display all the employees working in 'XYZ' company.

8.   What is SQL? Explain the view in SQL? How is it defined?

9.   Consider the relational table given below and answer the following SQL queries.

    Employee (SSN-No, Name, Department, Salary)

        (a) List all the employees whose name starts with the letter 'L'.

        (b)   Find the maximum salary given to employees in each department.

        (c) Find the number of employees working in 'accounts' department.

        (d)   Find the second maximum salary from the table.

        (e) Find the employee who is getting the minimum salary.

10.   Describe the Indexing process in Structured Query Language.

DBMS Question Bank Part 3

Very short question: -

1. List any four advantages of using DBMS?
2. What is mean by data independence?
3. What is an E-R diagram?
4. What is the difference between primary key and unique key?
5. What is access control?
6. Why normalization is required?
7. Define views in SQL?
8. What is meant by aggregate functions?
9. Define nested relation?
10. What is concurrency control?

Short question: -

1. Write a short note on: -
        (a)   Architecture of DBMS
        (b)   DBMS v/s file system

2. differentiate between logical and physical data independence?
3. what is generalization and aggregation? give example.
4. What is referential integrity and entity integrity?
5. What are the properties of transaction?
6. What do you mean by lossless and lossy decomposition?
7. What are the different SQL operators?
8. Write a short note on SQL commands?
9. write a short note on object-oriented data model.
10. what do you mean by distributed transactions?

Long Questions: -

1. Explain the rules defined by CODD that are necessary for any DBMS to be considered as RDBMS.

2. Write a short note on: -
   (a) Role of database administrator
   (b) Database schema
3. Explain fundamental operation of relational algebra.
4. Write short note on: -
   (a) Mapping constrains
   (b) Keys in DBMS
5. (a) Explain states of transaction?
   (b)What is backup and recovery in DBMS? Explain with suitable example.

6. What is normalization? Explain 1NF,2NF,3NF and BCNF with suitable-   example.

   7. What do you understand by view and index in SQL? Explain each with suitable example.

8. Write a short note on: -

   (a) Minus in SQL

   (b) update and delete operation in SQL

9. (a) Explain persistent programming language.

   (b) Explain distributed query processing.

10. Write a short note on: -

   (a) Object-relational database

   (b) Distributed data storage.