# VIDYA JYOTHI INSTITUTE OF TECHNOLOGY

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**Question Bank**

**Name of the Subject: DBMS Yr : II B.tech-CSE Sem : II**

**Unit -I**

**Long Answers Type Questions: (5 questions)**

1. (a) Write the applications of Database system. Make a comparison between Database system and File system.

b)Draw ER model for university and convert it as relational data base model.

1. a) Explain generalization, specialization and aggregation in E -R Model .

b) Develop an E -R Diagram for Banking enterprise system

1. (a) Define attribute? Explain different type of attributes with example?

b) Explain about mapping cardinality with examples.

1. (a) Describe the ER model design issues.

(b) Explain in detail about Database Architecture.

1. (a) A company database needs to store data about employees, departments and children of employees. Draw an ER diagram that captures the above data.

(b) Explain in detail about design process.

**Short Answers Type Questions: (20 questions)**

1. What is DBMS?
2. What is meant by instance and schemas?
3. What are different data models?
4. What is meant by composite attribute and derived attribute?
5. What are the types of languages a database system provides? Explain.
6. What are different types of Data manipulation languages Available?
7. What are the uses of DML and difference between procedural and non procedural languages?
8. Explain the properties of DDL.
9. What is an ER diagram?
10. Specify the notations used to indicate various components of ER-diagram.
11. What is meant by Strong entity give an example?
12. Explain levels of data abstraction.
13. List and explain the functions of database administrator.
14. Write about storage manager component of Database System structure.
15. How to specify different constraints in ER diagram with examples?
16. Explain the basic structure of Relational database.
17. What is meant by super key and candidate key?
18. What are different types of users?
19. What is meant by weak entity give an example?
20. Discuss aggregation versus ternary Relationships.

.**Unit-2**

**Long Answers Type Questions: (5 questions)**

1. (a) Explain briefly about sql data definition languages.
2. Write syntax of basic sql query structure with an example.
3. (a) What are the set operations in sql? Give an example to each.
4. What are the aggregate functions in sql? Give an example to each function.
5. (a) What is the difference between joins and set union?
6. Explain about nested queries and correlated subquery. Give an example.
7. (a) What are the DML commands that are used for modifying the database?
8. What are different types of joins? Explain.
9. (a) What are different types of Integrity constraints? Explain with examples.
10. Explain in detail about functions, procedures ,triggers in sql .give an example.

**Short Answers Type Questions: (20 questions)**

1. Explain about Group by clause?
2. Compare candidate key, primary key and super key.
3. What is the difference between char and varchar?
4. What is the difference between primary key and foreign key?
5. What is the difference between truncate and drop?
6. Write about select, from and where clause with an example.
7. What is the use of rename operation? Give an example.
8. Difference between group by and having clause.
9. Write about the properties of null values in sql .
10. Write an sql query to retrieve the null values.
11. What is the difference between sub query, nested sub query and correlated sub query?
12. What is meant by join?
13. What is natural join?
14. What is the difference between all, any in that are used in sub queries?
15. What is inner join?
16. List the types of outer joins.
17. Define View explain with example
18. Difference between unique key and primary key.
19. What is meant by commit, grant and revoke?
20. What is meant by row level triggers?

**Unit-3**

**Long Answers Type Questions: (5 questions)**

1. What is a relational database query? Explain with an example.
2. Relational Calculus is said to be a declarative language, in contrast to algebra, which is a procedural language. Explain the distinction.
3. Write the following queries in Tuple Relational Calculus for following Schema.

Sailors (sid: integer, sname: string, rating: integer, age: real)

Boats (bid: integer, bname: string, color: string)

Reserves (sid: integer, bid: integer, day: date)

i. Find the names of sailors who have reserved a red boat

ii. Find the names of sailors who have reserved at least one boat

iii. Find the names of sailors who have reserved at least two boats

iv. Find the names of sailors who have reserved all boats.

4. (a) Explain various operations in relational algebra with example.

(b) Explain about atomic domains and first normal form with an example.

5. (a) Using an example convert the data into first normal form and second normal form.

(b) What is meant by BCNF and Dependency prevention? Explain with an example.

**Short Answers Type Questions: (20 questions)**

1. Compare procedural and non procedural DML’s.
2. Compare Tuple and Domain relational calculus
3. What are the features of good designs?
4. Write about design alternatives in large schemas.
5. What is Normalization? Give types of normalization.
6. Explain lossy join decomposition.
7. What are the advantages of normalized relations over the unnormalized relations?
8. What is redundancy? What are the problems caused by redundancy?
9. What is dependency preserving decomposition?
10. Explain multivalued dependencies with example.
11. Explain lossless join decomposition.
12. Consider the relation R(A,B,C,D,E) and FD’s

A->BC

C->A

D->E

F->A

E->D

Is the Decomposition R into R1(A,C,D),R2(B,C,D) and R3(E,F,D) lossless?

1. Explain BCNF with example
2. Explain about keys and functional dependencies
3. What is meant by 3NF?
4. Write about 4NF?
5. Compare 3NF and 4NF?
6. What are higher normal forms?
7. Explain 3NF and BCNF with examples.
8. Write about more normal forms.

**Unit-4**

**Long Answers Type Questions:**

1. (a)List and explain ACID properties with examples.
2. Define serializability and explain conflict serializability
3. (a) What are the isolation level and explain them with examples.
4. Explain transaction isolation and atomicity
5. a) Explain the concept of implementing atomicity and durability.

b) Explain deadlock recovery

1. (a) Explain in detail about lock based protocol.

(b) Define deadlock. Explain Deadlock prevention concepts.

5. (a) Explain about Time Stamp based protocol

b) Explain deadlock detection

**Short Answers Type Questions: (20 questions)**

1. Whatis meant by transaction?

2. Discuss about recoverable schedule.

3. What are the transaction states? Explain with neat diagram

4. What are TCL command?

5. Discuss about the cascade less schedule.

6.Define two phase locking protocol

7. Discuss about Growing phase and Shrinking Phase.

8. Define Starvation

9. What are the conditions of view serializability?

10. Define isolation with example.

11. What is meant by serial schedule?

12. What is meant by non serial schedule?

13. Define upgrade and downgrade.

14. What are the operations of Transaction? Explain with example.

15. Define atomicity with example.

16. How to test the conflict serializabilty? Explain with example.

17. Explain Thomas write rule

18. Discuss in brief about consistency.

19. Define durability.

20. What are the two types of lock modes? Define them

**Unit-5**

**Long Answers Type Questions**

1. Explain the difference between the three storage types—volatile, nonvolatile,

and stable

2. Draw and explain remote backup system in detail.

3. Explain the concept of stable storage implementation.

4. Discuss about ARIES algorithm.

5. Explain the concept of log based recovery

**Short Answers Type Questions: (20 questions)**

1. What is the Failures classification?

2. What happens if there is a failure with loss of nonvolatile storage?

3. What is meant by Buffer Management?

4. Discuss Deferred database modification with example

5. Define a checkpoint?

6. Discuss Immediate database modification with example?

7. Define Failure stop assumption.

8. What is meant by dirty page table?

9. Enumerate the steps in Recovery Algorithm when there is a System crash.

10. What is meant by Write Ahead Logging?

11. Define Fuzzy checkpoint.

12. Define latches.

13. what is meant by steal policy and no steal policy.

14.Define physical blocks

15. What is meant by buffer blocks.

16. What is meant by disk buffer.

17.Define REDO phase

18. Define UNDO phase

19. What is meant by Swap space

20. what is meant by fuzzy dump