GTU Question Bank
Database Management System (2130703)
Semester - III

Unit 2: Relation Algebra

1. Explain the following terms with suitable example
   (1) Primary Key (2) Candidate Key (3) Foreign Key
2. Explain various types of joins with example.
3. What is Relational Algebra? Define Relational Algebra Operation cross product with example.
4. List relational algebra operations and explain any two with example.
5. Consider following schema and represent given statements in relation algebra form.
   * Branch(branch_name,branch_city)
   * Account(branch_name, acc_no, balance)
   *Depositor(Customer_name, acc_no)
   (i) Find out list of customer who have account at 'abc' branch.
   (ii) Find out all customer who have account in 'Ahmedabad' city and balance is greater than 10,000.
   (iii) find out list of all branch name with their maximum balance.
6. Explain following relational algebra operation
   (i)Natural join operation
   (ii) Selection and projection operation.

Unit 6: Transaction Management

1. Define Transaction. Explain the transaction properties and transaction states (life cycle).
2. What is deadlock? Explain necessary conditions for deadlock and methods for handling it.
3. Define Failure? Explain Log based Recovery (deferred database modification and immediate database modification).
4. What is deadlock? Illustrate the same using the Wait-For-Graph.
5. Explain time stamp based protocols in detail.
6. Explain role of check point in Log base.
7. List and explain various issues while transactions are running concurrently in DBMS.
8. Explain two phase locking protocol. Also list advantages of this protocol.
9. Explain wait-die and wound-wait for deadlock prevention.
10. Explain three type of actions to be taken for recovery from deadlock.
11. What is serializability? Explain view and conflict serializability with example
12. Explain shadow paging technique.

13. What is concurrency? If not controlled where it can lead to? What are the methods to control concurrency?

Unit 7: Security

1. Explain in detail Discretionary access control and mandatory access control.
2. What is authorization and authentication? Explain the access controls in a database.
3. What is security of data? Explain data encryption.

Unit 8: SQL Concepts

1. Explain any two aggregate functions of SQL.
2. What is ON DELETE CASCADE in SQL? Explain clearly with example.
3. What is NULL? Explain
4. Explain any two string functions in SQL.
5. Write with example various built in string functions.
6. Explain DDL, DML and DCL syntaxes with example.

Unit 9: PL/SQL Concepts

1. Write note on cursor and its types.
2. What is trigger? Explain its type with their syntax. What are the applications of trigger?
3. Explain stored procedures and stored functions.
4. Explain the advantages of PL/SQ
5. Write A PL/SQL block to print the sum of Numbers from 1 to 50.
6. Write A PL/SQL block to print the given number is Odd or Even.
7. Consider wholesaler of booh schema.
   Book(Book_id, book_title,publisher,book_price)
   (i) Implement procedure which print details of books whose price is more than average price.(Use cursor).
   (ii) Write a trigger such that if record is deleted from book table, insert old record in book_backup table.