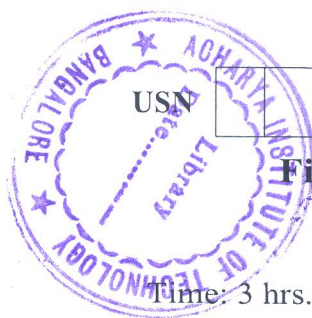


CBCS SCHEME

17CS53



Fifth Semester B.E. Degree Examination, July/August 2021 Database Management System

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions.

- 1 a. Define DBMS. Discuss the advantages of DBMS over traditional file system. (06 Marks)
b. What are the responsibilities of DBA and Database Designers? (04 Marks)
c. With an aid of a neat diagram, describe a Three – Schema Architecture and Data Independence. (10 Marks)
- 2 a. What are Structural constraints on a relation type? Explain with examples. (05 Marks)
b. What is a Weak Entity type? Explain the role of partial key in design of weak entity type. (05 Marks)
c. Design an ER – Diagram for a UNIVERSITY database schema and indicate all key and cardinality constraints. (10 Marks)
- 3 a. List and explain characteristics of Relations. (05 Marks)
b. List Set theory operations used in relational data model. Explain any two with examples. (05 Marks)
c. Briefly discuss the different type of Update Operations on relational database. Show an example of a violation of the referential integrity in each of the update operations. (10 Marks)
- 4 a. Explain the following SQL commands : CREATE , INSERT , SELECT and UPDATE. Give their syntax and atleast one example for each. (14 Marks)
b. Write the SQL statement for the :
i) Show the resulting salaries if every employees working on the 'Product X' project is given a 10% raise.
ii) Retrieve all employees in department 5. Whose salary is between \$ 30,000 and \$ 40,000.
iii) Retrieve the name and address of all employees who work for the 'Research' department. (06 Marks)
- 5 a. Explain how the group by clause works. What is the difference between the WHERE and HAVING clause? (05 Marks)
b. What is a View? Explain how view's are created and dropped. (05 Marks)
c. Explain with an example constraints as Assertions and Actions as trigger. (10 Marks)
- 6 a. What is a CURSOR? Explain with example, retrieving multiple tuples with embedded SQL. (10 Marks)
b. Explain the concept of Create, Passing parameter, Call stored procedure from JDBC. (10 Marks)
- 7 a. Briefly explain the informal design guidelines used as measure to determine the quality of relations schema design. (08 Marks)
b. Define the 1NF, 2NF and 3NF with a suitable example for each. (12 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

- 8 a. Write an Algorithm to find a minimal cover for a set of functional dependencies. (06 Marks)
b. Find the minimal cover of G : The given set of FDs be G : {A → BCDE , CD → E}. (04 Marks)
c. Define Multi – valued dependency. Explain 4NF with an example. (10 Marks)
- 9 a. Discuss ACID properties of a database transaction. (04 Marks)
b. Explain the following with suitable example :
i) The lost update problem ii) The Temporary update (dirty read) problem. (06 Marks)
c. What is Schedule? Explain Conflict Serialization schedule with example. (10 Marks)
- 10 a. Briefly explain the two phase locking protocol used in concurrency control. (10 Marks)
b. Explain the following with an example :
i) NO – UNDO / REDO Recovery based on deferred update.
ii) Shadow paging. (10 Marks)
