Extra

S. E. Sem IV / R-19 / FH 23 / 15/05/2023
(COMP)   **Duration: 3hrs**   [Max Marks:80]
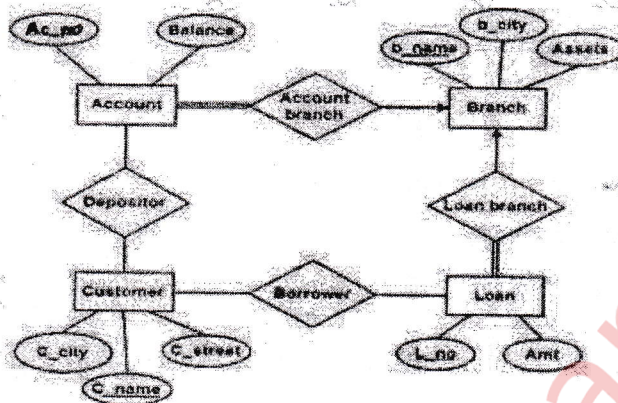
v. Chavan

QP : 29883

N.B. : (1) Question No 1 is Compulsory.
(2) Attempt any three questions out of the remaining five.
(3) All questions carry equal marks.
(4) Assume suitable data, if required and state it clearly.

1   Attempt **any FOUR**   [20]

a   Identify different users of database management system

b   Convert following E-R diagram to relational schema

c   Explain all types of integrity constraints with an examples?

d   List all functional dependencies satisfied by the relation.

X	Y	Z
X1	Y1	Z1
X1	Y2	Z1
X2	Y2	Z1
X2	Y2	Z1

e   Discuss Log based recovery with an example

2 a   Discuss three layer schema architecture with suitable diagram. What is Data   [10]
Independence? Explain types of data independence.

b   What is deadlock? Give deadlock prevention methods with suitable example   [10]

3 a   Construct an ER diagram and convert it into a relational model for a company   [10]
which has several employees working on different types of Projects. Several
employees are working for one department, every department has a manager.
Several employees are supervised by one employee. Employees have zero or
more dependents

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b Explain the following Relational Algebra operations with suitable example. **[10]**

    1) Generalized Project 2) Select

    3) Union 4) Rename

    5) Natural Join

4 a Write SQL queries for the given database **[10]**

    Book(book_id, title,author, cost)

    Store(store_no, city, state, inventory_val)

    Stock(store_no, book_id,quantity)

  (i)Modify the cost of DBMS books by 10%

  (ii)Find the total number of books in Mumbai stores

  (iii)Find title of all books whose title contains the word 'System'

  (iv)Find title of the most expensive book

  (v)Add a new record in Book(Assume values as per requirement)

b Why there is need of normalization? Explain 1NF, 2NF, 3NF and BCNF with example. **[10]**

5 a Describe ACID properties with examples **[10]**

b Give example of serial schedule and equivalent to serial schedule with respect to conflict serailizability. Discuss conflict serializability with example **[10]**

6 Write short note on the following **(Any four)** **[20]**

a Conversion of Specialization to relational schema with suitable example **[05]**

b Types of attributes **[05]**

c 2PL concurrency control protocol **[05]**

d Triggers **[05]**

e Lossless decomposition **[05]**

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