

Vidya Vikas Mandal's
Shree Damodar College of Commerce & Economics, Margao-Goa
SY BCA, Semester-III, Semester End Examination November 2023
DATABASE MANAGEMENT SYSTEMS (CAC-110)

Duration: 2hrs

Max Marks: 60

Instructions:

- 1) *All Questions are Compulsory.*
- 2) *Start each question on a fresh page.*
- 3) *Figures to the right indicate maximum marks.*
- 4) *Draw a neat diagram wherever necessary.*

Q1A Define the following.

(5 x 1 = 05 Marks)

- a) Data Dictionary
- b) Object Relational Model
- c) Data Warehouse
- d) ODBC
- e) Composite key

Q1B Answer the following in not more than 40 words.

(5 x 1 = 05 Marks)

- a) State any two Data Mining techniques.
- b) Give an example of a derived attribute.
- c) What do you mean by insertion anomaly?
- d) What do you mean by deadlocks?
- e) State any 2 applications of Genome Databases.

Q2. Answer the following.

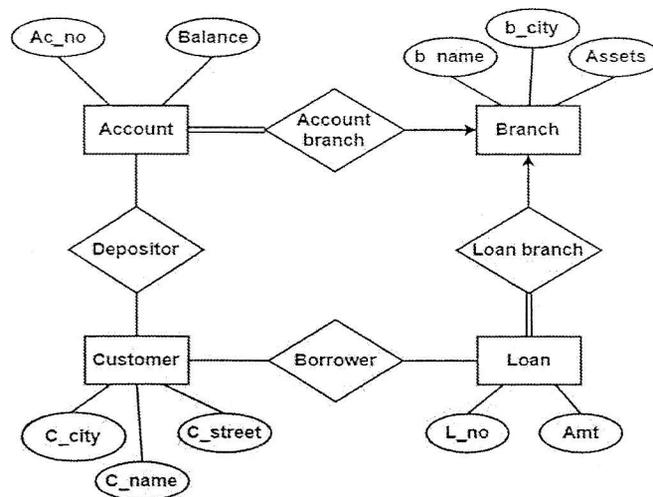
- A) State any two advantages of using Database Management Systems. **2 marks**
- B) Explain 3-Tier database architecture with the help of a suitable diagram. **3 marks**
- C) Draw ER Diagram along with cardinality for the problem definition given below. Also indicate the primary key for each entity. Write your assumptions clearly, if any:- **5 marks**

Bank has Customers. Banks have branches. Branches are identified by a branch_no., branch_name, address. Customers are identified by name which has First name and Last name, cust-id, minimum two phone numbers, address. Customer can have one or more accounts. Accounts are identified by

account_no., acc_type, balance. Customer can avail loans. Loans are identified by loan_id, loan_type and amount. Account and loans are related to bank's branch.

Q3. Answer the following.

- A) State any two differences between Hierarchical Model and Network Model. **2 marks**
- B) Explain the concept of Specialization with a suitable example. **3 marks**
- C) Design Schema for the ER Diagram given below. Also, identify required keys, wherever applicable, for each of the tables. State your assumptions clearly, if any. **5 marks**



Q4. Answer the following.

- A) What do you mean by Partial participation? Give an example. **2 marks**
- B) Distinguish between binary relationship and ternary relationship (Any 3 points). **3 marks**
- C) Explain the concept of 3NF with a suitable example. **5 marks**

Q5. Answer the following.

- A) State 4 different types of Functional dependencies. **2 marks**
- B) Explain the rules for a relation to be in Fourth Normal Form. **3 marks**

C) Examine the following table:

5 marks

EMP_ID	EMP_NAME	EMP_ZIP	EMP_STATE	EMP_CITY
101	Harry	200101	UP	Noida
102	Stephan	210102	Gujarat	Surat
103	Tom	100121	MP	Bhopal
104	Katherine	302152	Tamilnadu	Chennai
105	John	203101	Kerala	Cochin
106	Joy	400101	Goa	Panjim

Why is this table not in 3NF? Illustrate the process of normalizing the table to third normal form (3NF).

Q6. Answer the following.

A) Explain Concurrent Schedules with an example.

2 marks

B) Explain Mobile Database and advantage of Mobile Database.

3 marks

C) Explain states of transaction with the help of an suitable diagram.

5 marks