

USN

--	--	--	--	--	--	--	--	--	--

Third Semester MCA Degree Examination, December 2010 Database Management Systems

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions.

- 1
 - a. List any four advantages of DBMS over traditional file management systems. (04 Marks)
 - b. Explain the 3-schema architecture. (06 Marks)
 - c. Discuss in detail, the component modules of DBMS and their interaction, with a diagram. (10 Marks)

- 2
 - a. What is a data model? Explain. (04 Marks)
 - b. What is an attribute? Explain the different types of attributes, with suitable examples. (06 Marks)
 - c. Design an ER diagram for a bank database system by listing the entities, relationships and attributes. Also, mention the weak entity sets and primary keys. The requirements are as follows:
 - i) A bank has many branches.
 - ii) Customer details are to be stored.
 - iii) A customer can open an account in any branch.
 - iv) Each bank branch can sanction loans to the customers.

Note: Also mention cardinality ratio and participation constraints. (10 Marks)

- 3
 - a. Explain the following terms giving examples as required:

i) Entity integrity constraint	ii) Outer union	iii) Referential integrity constraint
iv) On delete cascade	v) Left outer join	vi) Union compatibility.

(12 Marks)
 - b. Consider the following computer spare parts company relation schema:
 - Customer (Cust_No, Custname, City)
 - Order (Order_no, Cust_no, Date)
 - Item (item_no, item_name, Price)
 - Ord_item (Order_no, item_no, quantity)

Give relational algebra expression for the following queries:

 - i) List all the customers who have ordered the item 'pen drive'.
 - ii) List all the items ordered by customer 'ADAM'.
 - iii) List all the customers living in Bangalore.
 - iv) List all the items ordered along with the customer names, who have placed the order. (08 Marks)

- 4
 - a. Explain the seven-step algorithm to convert the basic ER model constructs into relations, using suitable examples. (12 Marks)
 - b. What is embedded SQL? Explain. (04 Marks)
 - c. What is the use of a cursor in SQL programming? Explain. (04 Marks)

- 5
 - a. Discuss the insert, update and delete statements in the SQL, with examples. (06 Marks)
 - b. Use the relation schema shown in Q.No.3(b) and answer those queries, using SQL. (08 Marks)
 - c. Differentiate a subquery and a correlated subquery. (06 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.

- 6 a. Discuss in detail, the four informal measures of quality in relation schema design. (10 Marks)
- b. Define the term functional dependency, using an example. (02 Marks)
- c. What is minimal set of FDs? Give an algorithm to find the minimal cover for the given set of FDs. (08 Marks)
- 7 a. What is normalization? (02 Marks)
- b. Explain the 1NF, 2NF, 3NF and BCNF, with suitable examples. (14 Marks)
- c. What are the two important properties that any relation schema should confirm during the process of normalization? Explain. (04 Marks)
- 8 a. What is a transaction? What are the four important properties of transactions to be maintained during concurrent access? (10 Marks)
- b. Give an account of the working of the ARIES recovery algorithm in crash recovery. (10 Marks)

* * * * *