

PGDCA / MCA (I Year)

Term-End Examination

December, 2011

CS-06 : DATABASE MANAGEMENT SYSTEM

Time : 3 hours

Maximum Marks : 75

Note : Question number 1 is compulsory. Attempt any three from the rest.

1. (a) Consider the following Relations : 8

BRANCH (Branch_name, Street,
Branch_city)

CUSTOMER (Customer_name, Street,
Customer_city)

DEPOSIT (Branch_name, Act_no,
Customer_name, Balance)

BORROW (Branch_name,
Loan_number,
Customer_name,
Amount)

CLIENT (Customer_name,
Banker_name)

Write the SQL statements for the following :

- (i) Find all the customers who have a balance of over Rs. 1,00,000 in any of the Bank's.

- (ii) Find all the customers whose loan amount is exceeding 20 lakhs in any of the Branch.
 - (iii) Find all the customer details whose name starts with "A".
 - (iv) Find the address of the Branch whose Branch city is given.
- (b) A publishing company produces scientific books on various subjects. The books are written by Authors who specialize in one particular subject. The company employs Editors who, not necessarily being specialists in a particular area, each take sole responsibility for editing one or more publications. A publication covers essentially one of the specialist subjects and is normally written by a single Author. When writing a particular book, each author works with one Editor, but may submit another work for publication to be supervised by other editors. To improve their competitiveness, the company tries to employ a variety of authors, more than one author being a specialist in a particular subject. 10

Draw an ER diagram, identifying all the entities, attributes, relationships, cardinality etc.

- (c) With the help of an example, explain the structure of Index Sequential File Organisation. 7

- (d) Consider a Relation : 5

A	B	C
a ₁	b ₁	c ₁
a ₁	b ₁	c ₂
a ₂	b ₁	c ₁
a ₂	b ₁	c ₃

List all the functional dependencies satisfied by this relation.

2. (a) Discuss a "Balanced Sort Tree" with the help of a suitable example. Also, mention its properties. 8
- (b) Explain Aggregation and specialization, with the help of a suitable example for each. 7
3. (a) Write the important issues in Knowledge Representation and with the help of a suitable example explain the Rule Based Representation. 7
- (b) Explain the process of hashing. Draw the bucket and block organisation for hashing. Also write the advantages and disadvantages of hashing. 8

4. (a) Define 2NF and 3NF. Normalize the following table to 3NF. 8

Id-No	Name	Dept	Course	Hostel
111	Ajay	Chemistry	BSc	Blk - I
112	Deepak	Physics	BSc	Blk - I
113	Simran	Maths	MSc	Blk - III
114	Kranth	English	MA	Blk - III
115	Phani	Social-Work	BA	Blk - I
116	Digvijay	Computers	MCA	Blk - IV

- (b) Explain the features of OORDBMS. What are its Applications ? Also, list the alternative OODB strategies. 7

5. Write short notes on : 15

- (a) Inverted file organization
 - (b) Distributed computing environment.
 - (c) Semantic nets.
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