B.Tech Degree V Semester (Supplementary) Examination June 2011

CS/IT 505 DATABASE MANAGEMENT SYSTEMS

(2006 Scheme)

Time : 3 Hours Maximum Marks : 100

PART A

(Answer **all** questions)

(8x5=40)

I. a) Describe the need for 'database schema'. Draw an example schema. Also compare it with 'database state'.

b) Define 'Relationship' and 'Relationship Degree' in ER model. With suitable examples, explain various degrees of relationship types.

c) Distinguish between heap files and sorted files. How can you delete a record from the file?

d) With suitable example, explain clustering index. Is it dense?

e) Describe:

(i) aggregate functions in Relational algebra

(ii) attribute data types in SQL

f) What is the need for normalization? Explain first three normal forms.

g) What do you mean by a transaction? What are desirable properties of transaction?

h) Discuss about Object Oriented Database.

PART B (4x15=60)

II. a) A bank database is being constructed to keep track of relevant details about customers, branches, loans etc. Design an ER schema for this application, stating any assumption you make. Draw ER Diagram and specify relationships, keys, constraints etc. (12)

b) Distinguish between composite attributes and multivalued attributes. Give examples. (3)

OR

III. a) Why EER is required in database system? Write the concepts/features included in EER. (10)

b) With example, explain the concept of cardinality Ratio. How do you represent it in ER diagram? (5)

IV. a) What is mixed file? Give example. (3)

b) Suppose that we have an ordered file with 20,000 records stored on a disk with block size 1024 bytes. Each record has fields Name (30 bytes), ENO (10 bytes), Address (40 bytes), DOB (8 bytes), sex (1 byte) and email id (11 bytes). Calculate (8)
(i) size of each record (ii) Blocking factor (with definition)
(iii) No. of required blocks (iv) How much time will it take to search for a record? Why?
Now, assume that we constructed a 'primary index' for the file with key field (ENO-10byte) and block pointer (5 bytes). Then explain how this will affect the search time. (4)

OR

V.	a)	Discuss the idea behind hashing. Explain various hashing techniques and state related problems.	(10)
	b)	Which hashing technique is used in extendible hashing?	(5)
VI.	a)	Explain the concept of superkey, candidate key and primary key.	(5)
	b)	State relational model constraints and how do 'insertion' and 'deletion' operations violate these constraints (if it violates).	(10)

OR

VII.	a)	Consider following Relations: SALESPERSON (SSN, Name, START-YEAR, DEPT-NO) TRIP (SSN, FROM-CITY, TO-CITY, DATE-OF-DEPARTURE, TRIP-ID) EXPENSE (TRIP-IDE, ACCOUNT #, AMOUNT) Specify the following queues in Relational Algebra i) Detains of trip that exceeded Rs.10,000/ -in expenses. ii) Print the SSN of sales person who took trips to Kolkotha	(4)
	b)	Explain the concept of FD. Also state Inference Rules.	(9)
	c)	With an example, explain BCNF.	(2)
VIII.	a)	Why is concurrency control required in a multiuser system?	(6)
	b)	Write a short note on optimistic concurrency control.	(4)
	c)	How recovery management can be done? (shadow paging)	(5)

OR

IX.	a)	What are various factors to be considered in building Data warehouses?	(10)
	b)	Describe about datamining as a part of KDD.	(5)

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