B.Tech. Degree V Semester Examination November 2012

CS/IT 505 DATABASE MANAGEMENT SYSTEMS

(*2006 Scheme*)

Time : 3 Hours Maximum Marks : 100

PART A

(Answer *ALL* questions)

(8 × 5 = 40)

I. (a) Explain the significance of 'data models' in database design. Also describe database languages.

(b) When do we use the concept of 'type inheritance'? Explain with an example.

(c) Discuss any two techniques for placing records on disk.

(d) With an example, explain briefly the concept of 'indexed file structure'.

(e) Write the important features of relational model. Why are tuples in a relation not ordered?

(f) Describe the importance of functional dependencies. How do we find out the closure of FDs?

(g) Explain 'schedule' in transaction management.

(h) Give features of data mining.

PART B

(4 × 15 = 60)

II. (a) Discuss the main features of DBMS. (10)

(b) Write short notes on: (5)

(i) DBA

(ii) Data independence

OR

III. (a) Why do we specify 'constraints' on relationship types during database design? With suitable example, explain two types. (10)

(b) Define: (5)

(i) Role

(ii) Participation

(iii) Relationship degree

IV. (a) Describe seek time, latency and block transfer time. (5)

(b) Discuss the file organisation method that takes less access time. Also explain the search algorithm. (10)

OR

V. (a) Compare hashing and indexing. (5)

(b) Explain dynamic hashing technique. Also write its advantages. (10)

(P.T.O.)

VI. (a) Which relational model constraint deals with 'two relations' in a database? Explain with an example. (5)

(b) For the following schema, express the queues in relational algebra: (5)

EMPLOYEE (Person name, street, city)

WORKS (Person name, Company name, salary)

COMPANY (Company name, city)

MANAGES (Person name, Manager name)

(i) Find the names, street address and cities of residence of all employees who work for 'First Bank Corporation' and earn not more than $10,000.

(ii) Find all employees in the database who do not work for First Bank Corporation.

(c) What are the datatypes used in SQL? How are the constraints specified in SQL? (5)

OR

VII. (a) What is the need for normalization process in database design? How do we normalize given relations? Describe various normal forms. (10)

(b) State Armstrong's inference rules. If $R=(A, B, C, G, H, I)$ a relation and $F=\{A \rightarrow B,\ A \rightarrow C,\ CG \rightarrow H,\ CG \rightarrow I,\ B \rightarrow H\}$, a set of FDs, then find out F^+. (5)

VIII. (a) What is the need for concurrency control techniques? Describe any one method. (10)

(b) Write short note on recovery management. (5)

OR

IX. (a) What are the features of object oriented database? (5)

(b) Discuss the concept of data warehouse. (10)

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