

- (c) Explain the various types of database parallelism. Also explain partition parallelism and pipeline parallelism in databases. How parallel database operations can be implemented? Give one example.

Answer any two parts :

2×10

- (a) Write a short note on data mining covering all the aspects.
- (b) Discuss how a data warehouse can be mapped to a multiprocessor architecture.
- (c) Compare and contrast -
- OLTP and OLAP
 - ROLAP (Relational OLAP) and MOLAP (Multidimensional OLAP)
 - Fact data and dimension data.



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TEE-11

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 0203

Roll No.

B. Tech.

(SEM. VII) EXAMINATION, 2008-09
DATA BASE MANAGEMENT SYSTEM,
DATA MINING AND WAREHOUSING

Time : 3 Hours]

[Total Marks : 100

Note : Attempt all questions.

1 Answer any four parts

4×5

- Explain in brief the difference between logical data independence and physical data independence.
- Explain the tasks of a database administrator.
- List the advantages and disadvantages of a database system.
- Explain the concept of clustering, indexing and hashing. Explain their use.
- Explain the integrity rules to be satisfied by any relation. Give examples.
- Explain the following DDL statements - CREATE, ALTER and DROP.

2 Answer any four parts :

4×5

- Explain the terms referential integrity, domain constraints, relation constraint and explicit constraint.



- (b) Differentiate among candidate key, primary key, super key and foreign key.
- (c) Define triggers with the help of an example and explain its purpose.
- (d) Explain specialization and aggregation with the help of an example.
- (e) Convert the following typical SQL query in to its corresponding relational algebra expression :

Select A_1, A_2, \dots, A_n

from r_1, r_2, \dots, r_m

where P

- (f) Write the following SQL query using plain English text :

select distinct *T.customer-name*

from depositor T

where not unique (

select *R.customer-name*

from *account, depositor as R*

where *T.customer-name = R.customer-name*

and *R.account-number = account.account-number*

and

account.branch-name = 'Delhi')

3 Consider a hospital database design problem :

Patients are treated in a single ward by the doctors assigned to them. Usually each patient will be assigned a single doctor, but in rare cases they will have two. Health care assistants also attend to the patients; a number of these are associated with each ward. Initially the system will be concerned solely with drug treatment. Each patient is required to take a variety of drugs a certain number of times per day and for varying lengths of time. The system must record details concerning patient treatment and staff payment. Some staff

are paid part time and doctors and care assistants work varying amounts of overtime at varying rates (subject to grade). The system will also need to track what treatments are required for which patients and when and it should be capable of calculating the cost of treatment per week for each patient (though it is currently unclear to what use this information will be put).

Answer any two parts : 2×10

- (a) Draw the ER diagram describing above problem.
- (b) Convert the above ER diagram in to its corresponding relational tables.
- (c) Normalize the above database up to third normal form.

4 Answer any two parts : 2×10

- (a) A schema describing theatres, cities where they are located and shows is defined as follows :

CITY (Name, State, Country)

THEATRE (Name, City, State, Capacity)

SHOW (Title, Artist, Hall, Attendance)

Formulate the following queries using SQL -

- (i) Find all state in India where Mr. John has performed.
- (ii) List all artists who never played in Bombay.
- (iii) Find the name of theatres in Delhi whose capacity exceeds 2000.
- (iv) Find the name of artists who performed before at least 3000 people, together with cities where those performances took place.
- (b) Explain the architecture of a distributed database system. List its advantages and disadvantages. Discuss the implementation issues related with distributed databases.

