



SCHOOL OF COMPUTER SCIENCE AND ENGINEERING

CAT - I

CSE 2004 – Database Management Systems

Course Name: B.Tech

Slot: D1

Max. Marks: 50

Answer ALL Questions (5 * 10 = 50)

- 1 a. If you are a database designer in IBM, Describe the physical data models for database and recommend the suitable model to operate on social media data? (5)

b. Data Independence is achieved in modern databases using schemas, Exemplify the schema structure to achieve the above? (5)
- 2 If you are a database analyst for Oracle Corporation, as a stake holder of the corporation to train the customers on database environment, list the functionalities and different modules in DB. (10)
3. Major airlines companies that provide passenger services in Taiwan are: UniAir, TransAsia Airways, Far Eastern Transport, Great China Airlines etc. Taiwan's Federal Aviation Administration (TFAA) keeps a database with lots of information on all airlines. This information is made accessible to all airlines in Taiwan with the intention of helping the Companies assess their Competitive position in the domestic market. The information kept consists of: Each airline has an identification number, name of the contact person and telephone number. For each aircraft identification number, capacity and model is recorded.
 - Each employee has an employee identification number, name, address, birthday, sex, position with the company and qualification.
 - Each route has a route identification number, origin, destination, classification (into domestic or international route), distance of the route and price charged per passenger.
 - Each airline keeps information about their buy/sell transactions (for example, selling an airplane ticket is a sell transaction, paying for maintenance is a buy transaction). Each transaction has a transaction identification number, date, description and amount of money paid/received.

- a. Design a suitable ER diagram for the above scenario with all possible entities (minimum of eight entities), attributes and its corresponding relationship.

4. a) Answer the following

(5)

- i. Is it mandatory for a foreign key to be a primary key in another table? Y
- ii. Can foreign keys be null values in the child relation? Y
- iii. After enforcing foreign key constraint using on delete cascade rule, Can you delete the record in the child relation whose foreign key is not null before deleting the record in the parent relation?
- iv. Can foreign keys have duplicate values? N
- v. Can there exist more than one foreign key in a relation? Y

b) Reason out why Parent Keys Not Found Error occur during the enforcement of foreign keys and how will you fix it with a suitable example.

(5)

5. Compare primary key, candidate key, super key, alternate key. From the below tables identify primary key, candidate key, super key, alternate key and justify.

(10)

STUDENT

REGNO	NAME	PHONE NUMBER	STATE	COUNTRY	AGE
101	SHYAM	9090909090	PUNJAB	INDIA	19
102	BEN	9876543211	HARYANA	INDIA	18
103	KEN	9080808080	TAMILNADU	INDIA	19
104	RAM	9876597658	KERALA	INDIA	19

TABLE 2

COURSE

STUDENTNO	COURSENO	COURSENAM
101	C1	DBMS
102	C2	HCI
101	C2	HCI

TABLE 2