Paper / Subject Code: 88947 / Elective - II Database Management System

(3 Hours)   [Total Marks :80]

NB: 1)   Question No.1 is compulsory
     2)   Solve any three from remaining five questions.

Q.1 Solve all.   (20 Marks)

 a) Explain ACID properties of transaction.

 b) Explain different types of attributes with examples?

 c) Explain weak entity with example.

 d) Describe trigger with example.

Q.2 a) Define Normalization? Explain 1NF, 2NF and 3NF with example.   (10Marks)

 b) Discuss conflict serliazability and view serializability with example.   (10Marks)

Q. 3a) Consider a **MOVIE database** in which data is recorded about the movieindustry. The data requirements are summarized as follows:

 *   Each movie is identified by title and year of release. Each movie has alength in minutes. Each has a production company, and each is classifiedunder one or more genres (such as horror, action, drama, and so forth).Each movie has one or more directors and one or more actors appear in it.Each movie also has a plot outline. Finally, each movie has zero or morequotable quotes, each of which is spoken by a particularactor appearingin the movie.

 *   Actors are identified by name and date of birth and appear in one or moremovies. Each actor has a role in the movie.

 *   Directors are also identified by name and date of birth and direct one ormore movies. It is possible for a director to act in a movie (including onethat he or she may also direct).

 *   Production companies are identified by name and each has an address. Aproduction company produces one or more movies.

Design an entity–relationship diagram for the movie database.   (10 Marks)

b) Define deadlock. Explain Deadlock Detection, Prevention and Recovery.   (10Marks)

Q.4a) Explain three level schema architecture of DBMS. State different level of dependencies in this architecture.

(10 Marks)

b) What do you mean by data modelling. Discuss different types of models   (10 Marks)

Q.5a) Draw E-R diagram for hospital management system. Convert E-R diagram into tables.

(10 Marks)

b) Consider a Library database
member (member_no, name, age)
book(isbn, title, authors, publisher)
borrowed (member_no, isbn, date)
Write the following queries in SQL   (10 Marks)
  (a) Find the name of all members who have borrowed any book published by McGraw-Hill.(2 Marks)
  (b) Find the name of all members who have borrowed all book published by McGraw-Hill. (4 Marks)
  (c) Find the names of members who have borrowed more than five different books published by McGraw-Hill.(4 Marks)

Q.6a) Consider Bank Database
Marks   (10 Marks)
Branch (branch name, branch city, assets)
customer(customer name, customer street, customer city)
loan(loan number, branch name, amount)
borrower(customer name, loan number)
account(account number, branch name, balance)
depositor(customer name, account number)
Write the following queries in SQL.
  (a) Find all customers of the bank who have an account but not a loan   .(2 Marks)
  (b) Find the names of all branches with customers who have an account in the bank and who live in "Harrison".
     (2 Marks)
  (c) Delete the record of all accounts with balances below the average at the bank.   (2 Marks)
  (d) Find out the total sum of all loan amounts in the bank.(2 Marks)
  (e) Find the names of all branches where the average account balance is more than $1,200
     (2 Marks)

b) Write short note on(any two)
1) Constraints in SQL   (10 Marks)
2)Specialization and generalization
3) Integrity Constraints