2007 PUNJAB TECHNICAL UNIVERSITY M.B.A

M.B.A. (SEMESTER – 3TH / 4TH)
DBMS (MBA - 542)

Time : 03 Hours
Maximum Marks : 75

Instruction to Candidates:
1) Section - A is compulsory.
2) Attempt any Nine questions from Section - B.

Section - A
Q1) (15 x 2 = 30)

a) What is Database? Give an example.

b) Mention the advantages of using DBMS.

c) Define Entity with an example.

d) What is meant by Concurrency?

e) Define, compare and contrast the Single valued attribute/multi-valued attribute.

f) Define functional dependency.

g) Explain the role of DBA in a database environment.

h) What is a view? Explain what happens when a user accesses a database through a view.

i) What is data independence in the context of databases?

j) Explain how SQL handles the following SELECT related constructs :

(i) Joins (ii) Character Matching.

k) Give two advantages and two disadvantages of Distributed database Management System.

l) What is the purpose of "Null"? Is a component of a primary key allowed to accept "null"? Why?

m) Define the terms 3NF and BCNF. Define a relation that is not in 3NF.

n) Write a short note on transaction management in the context of Object Oriented DBMS.

o) Entity integrity constraint in the relational model says that in no relation, a _____ can be null, in the _____ constraint in the relational model, an attribute that is a _____ key may be null as long as it is not part of a _____ key.

Section - B
(9 x 5 = 45)

Q2) List and briefly explain the three levels of abstraction at which we design a database. For each list the basic elements of that level. For the lowest level only, what is the key consideration?

Q3) What is a database model? Explain any two types of data models with an example for each.

Q4) Explain the need of data replication and data fragmentation with respect

to distributed databases. List the differences between horizontal and vertical fragmentation.

Q5) Explain the various operators available in relational algebra by taking examples.

Q6) What is meant by Log based recovery techniques? Explain the writeahead log strategy for recovery in a centralized DBMS, with the help of an example.

Q7) What is multi-version technique of concurrency control? Describe this with the help of an example. Will this scheme result in rollback and/or deadlock? Justify your answer.

Q8) What are integrity constraints? Explain referential integrity constraint with an example.

Q9) Explain how the "GROUP BY" clause works. What is the difference between WHERE and HAVING clauses? Explain them with the help of an example for each.

Q10) What are the main features of the Object Oriented Database Management System? How is this advantageous over RDBMS?

Q11) Suppose you are asked to design a university database system. What are the security measures that may be proposed by you for database security? You must define various security levels for physical security, database access and external schema.

Q12) Suppose in any manufacturing organization, a database updating operation is always performed, immediately on the physical (stored) database. How are do, undo and redo operations performed for this database? Explain with the help of a suitable example.

Q13) Consider the following relations :

Hotel {hotelNo, name, address}
Room {roomNo, hotelNo, type, price}
Booking {hotelNo, guestNo, dateFrom, dateTo, roomNo}
Guest {guestNo, name, address}

Write the SQL statements for the following:

(a) List the names and addresses of all guests in Chandigarh, alphabetically ordered by name.

(b) List all family rooms with a price below Rs. 400 per night, in ascending order of price.

(c) How many hotels are there?