

T.E. IT Sem - I
May - June - 2012

Total No. of Questions : 12]

SEAT No.:

P1134

[Total No. of Pages : 3

[4163]-341

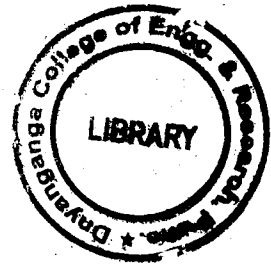
**T.E. (Computer Engg.) (Common To I.T.)
DATABASE MANAGEMENT SYSTEMS
(2008 Pattern) (Sem. - I)**

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) Answers to the two sections must be written in separate books.
- 2) Assume suitable data if necessary.
- 3) Solve section-I : Q. 1 or Q. 2, Q. 3 or Q. 4, Q. 5 or Q. 6.
- 4) Solve section-II : Q. 7 or Q. 8, Q. 9 or Q. 10, Q. 11 or Q. 12.



SECTION - I

- Q1)** a) Compare various data models. [10]
 b) Explain in detail the different levels of data abstraction. [4]
 c) Compare DBMS and file processing system with following points. [4]
 i) Redundancy.
 ii) Access Control.

OR

- Q2)** a) What is difference between specialization and generalization? Why do we not display this difference in schema diagram. [6]
 b) Specify the CODD's norms to be specified by RDBMS. [6]
 c) What are the enhancements that distinguish the EER model from the ER Model? Explain with example. [6]

- Q3)** a) Consider following relational database employee (emp _ name, street, city). [8]

Works (emp _ name, company _ name, salary).

Company (company _ name, city).

Manages (emp _ name, manager _ name).

For each of the given query, given expression in relational algebra.

- i) Find emp _ name, street and cities of residence whose salary exists in between 30,000 to 40,000 and work for XYZ Ltd.
- ii) Find the name, street and cities of employees who live in the same city as the company they work for.

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- b) Write a short note on dynamic and embeded SQL. [8]

OR

- Q4) a) Explain stored procedures and triggers. [8]
b) Explain create, Insert, update and delete operations with respective to views. [8]

- Q5) a) Let $R = (A, B, C, D, E)$ and let M be the following set of multivalued dependencies $A \twoheadrightarrow BC, B \twoheadrightarrow CD, E \twoheadrightarrow AD$.

List the non-trivial dependencies in M^+ . [8]

- b) Explain why 4NF is more desirable than BCNF. Rewrite the definition of 4NF and BCNF using the notions of domain constraints. [8]

OR

- Q6) a) What is decomposition? Suppose that we decompose the schema $R = (A, B, C, D, E)$ into (A, B, C) and (A, D, E) , show that this decomposition is a lossless decomposition if the following set F of functional dependencies holds.

$A \rightarrow BC, CD \rightarrow E, B \rightarrow D, E \rightarrow A$. [8]

- b) Describe the concept of Transitive dependency and explain how this concept is used to define 3NF. [8]

SECTION - II

- Q7) a) Explain in detail use of B-Tree as an indexing technique. Compare B-Tree and B^+ -Tree. [8]

- b) Explain roll of "selection" operation in query processing. [6]

- c) How cost of query is measured? [4]

OR

- Q8) a) What are the steps involved in query Processing? Explain each in brief. [8]

- b) What are the various techniques to handle variable length records? Explain any one in details. [8]

- c) Define Dense index. [2]

- Q9) a) Explain the concept of 'Transaction'. Describe ACID properties for transaction. [8]

- b) Explain deferred database modifications and immediate database modifications and their difference in the context of recovery. [8]

OR

- Q10)** a) Explain two phase locking protocol. How does it insure serializability. [8]
b) Explain recoverable and cascadeless schedules. [8]

- Q11)** a) Explain how persistent pointer is implemented, compare this implementation with that of pointers as they exist in general purpose language such as 'C'. [8]
b) Specify advantages and disadvantages of distributed database system. [8]

OR

- Q12)** a) Write a short note on any two : [12]
i) Pointers swizzling techniques.
ii) Persistent programming language.
iii) Association rules for data mining.
b) Explain the need of backup and replication. [4]



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