

Roll No.

24162

B. Tech. 4th Sem.

Examination – May, 2011

DATABASE MANAGEMENT SYSTEMS

Paper : CSE-202-F

Time : Three hours]

[Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Question No. 1 is **compulsory**. Attempt **one** question from each of the **four** Sections.

1. (a) Differentiate between logical and physical data independence.
- (b) Why is the concept of a weak entity used in data modelling ?
- (c) How does multilevel indexing improve the efficiency of searching an index file ?
- (d) Define BCNF. How does it differ from 3NF ?
- (e) Elaborate ACID properties of a transaction.

4 × 5 = 20

SECTION – A

2. (a) Elaborate the responsibilities of DBA. 10
(b) Discuss the role of a high-level data model in the database design process. 10
3. (a) What is the difference between the two-tier and three-tier client/server architecture? 10
(b) Discuss the naming conventions used for ER schema diagrams. 10

SECTION – B

4. (a) Discuss the various types of inner join operations. Why is theta join required? 8
(b) Discuss the entity integrity and referential integrity constraints. Why is each considered important? 8
(c) What is meant by union compatibility? 4
5. (a) What is the order p of a B-tree? Describe the structure of B-tree nodes. 10
(b) What is partitioned hashing? How does it work? What are its limitations? 10

SECTION – C

6. (a) What is a SQL trigger? How is it different from a stored procedure? 7
(b) State Armstrong's axioms. Why are they considered as sound and complete? 7
(c) Discuss insertion, deletion and modification anomalies. Why are they considered bad? 6

7. (a) What is a multi-valued dependency ? What type of constraint does it specify ? When does it arise ? 10
- (b) What is the dependency preservation property of a decomposition ? Why is it important ? 5
- (c) Define 4 NF. When is it violated ? Why is it useful. 5

SECTION – D

8. (a) Write about network data model and hiererichal data model. 15
- (b) What are parallel databases ? 5
9. Write short notes on the following :
- (a) Locking techniques for concurrency control. 10
- (b) Database Recovery. 10
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