Total No of Questions: [12] *SEAT NO. :*

[Total No. of Pages : 2]

T.E. 2008 (Information Technology)

Data Base Management Systems

(Semester - I)

Time: 3 Hours *Max. Marks : 100*

Instructions to the candidates:

1) ***Answers to the two sections should be written in separate answer books.***
2) ***Solve Section I : Q1 or Q2, Q3 or Q4, Q5 or Q6.***
3) ***Solve Section II: Q7 or Q8, Q9 or Q10, Q11 or Q12.***
4) ***Neat diagrams must be drawn wherever necessary.***
5) ***Figures to the right side indicate full marks.***
6) ***Use of Calculator is allowed.***
7) ***Assume Suitable data if necessary***

SECTION I

Q1)	a)	Explain different data models in detail.	[10]
	b)	Explain mapping cardinalities with suitable example.	[8]
Q2)	a)	How following problems are handled in DBMS: i) Data Isolation ii) Data Redundancy and Inconsistency iii) Data Integrity	[6]
	b)	What do you mean by a key? Explain different types of keys with suitable example.	[6]
	c)	State and explain Codd's rules.	[6]
Q3)	a)	Consider the following relational database schema: Employee(person_name, street, city) Works(person_name, company_name, salary) Company(company_name, city) Manages(person_name, manager_name) Give an expression in relational algebra for i) Find the names of all employees who work for FBC. ii) Find the names of all employees who live in the same city as the company for which they work. iii) Find the names and cities of residence of all employees who work for FBC. iv) Find the names of all employees who works for FBC and earn more than Rs 5000/- per month.	[8]
	b)	Define Cursor. Explain Explicit and Implicit cursor in PL/SQL with suitable example.	[8]
Q4)	a)	Explain various set operations in SQL with example.	[8]
	b)	What is a view in SQL and how it is defined? Discuss the problems that may arise when one attempts to update views. How views are typically updated?	[8]
Q5)	a)	What do you mean by Normalization? Explain different anomalies.	[8]
	b)	Describe the concept of transitive dependency and explain how this concept is used to define 3NF.	[8]
Q6)	a)	Consider the following set F of functional dependencies on schema (X,Y,Z) X—> YZ	[6]

		Y—> Z X—>Y XY—>Z Compute the canonical cover for F.	
	b)	Explain the following: i) Loss less decomposition ii) Dependency preservation decomposition	[8]
	c)	Define Boycee-Codd normal form (BCNF).	[2]
		SECTION II	
Q7)	a)	Differentiate between static and dynamic hashing.	[8]
	b)	Explain process of translating SQL query into relational algebra.	[6]
	c)	What is B+ tree? Give the node structure for B+ tree.	[4]
Q8)	a)	What is RAID? What are the major benefits of using RAID? Describe RAID levels 0, 1 and 5.	[6]
	b)	Explain Merge Join algorithm in query processing.	[8]
	c)	Write short note on Query execution plan.	[4]
Q9)	a)	Explain the following: i) Serializable schedule ii) Conflict serializable schedule iii) View serializable schedule iv) Recoverable schedule	[8]
	b)	Explain different Two phase locking protocol in transaction management.	[8]
Q10)	a)	Explain shadow paging and log based recovery scheme.	[8]
	b)	Write a short note on multi version concurrency control scheme.	[8]
Q11)	a)	Explain centralized and client-server architecture.	[6]
	b)	Explain distributed database system. Explain its advantages.	[8]
	c)	Describe need of OO database management system.	[2]
Q12	a)	Explain the architecture of data ware house system.	[8]
	b)	Write short note on: i) Data mining ii) Pointer swizzling techniques	[8]