Code No: RT31054 **R13** SET - 1

III B. Tech I Semester Regular Examinations, November- 2015
DATABASE MANAGEMENT SYSTEMS
(Common to CSE and IT)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	What is DBA? Mention the functionalities of DBA.	[3M]
	b)	What is a view? Explain it.	[4M]
	c)	Describe the properties of a relation.	[4M]
	d)	What is Functional Dependency? Explain it briefly.	[4M]
	e)	Illustrate lost update problem with suitable example.	[4M]
	f)	What is the purpose of file header?	[3M]

PART –B

2	a)	Draw and explain the detailed system architecture of DBMS.	[8M]
	b)	What are the advantages of DBMS?	[4M]
	c)	Describe the concept of client/server model.	[4M]
3	a)	Explain in detail about various key constraints used in database system.	[10M]
	b)	Explain the importance of Null values in Relational Model.	[6M]
4	a)	Discuss the mechanism of attribute relationship inheritance. How is it useful?	[8M]
	b)	By considering an example describe various data update operations in SQL.	[8M]
5	a)	Explain insertion, deletion and modification anomalies with suitable examples.	[8M]
	b)	State BCNF. How does it differ from 3NF?	[8M]
6	a)	Draw transaction state diagram and describe each state that a transaction goes through during its execution.	[8M]
	b)	Explain in detail about timestamp based concurrency control techniques.	[8M]
7	a)	Explain in detail about internal hashing Techniques.	[8M]
	b)	Discuss in detail about cluster and Multilevel indexes.	[8M]

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Code No: RT31054 **R13** SET - 2

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2. Answering the question in **Part-A** is compulsory
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PART –A

1	a)	List different types of database users.	[4M]
	b)	Mention various DML operations with examples.	[4M]
	c)	Explain the difference among Entity, Entity Type & Entity Set	[4M]
	d)	Briefly describe BCNF.	[3M]
	e)	Briefly discuss about different types of schedules.	[4M]
	f)	List out the operations that can be performed on files.	[3M]

PART –B

2	a)	Discuss the main characteristics of the database approach and specify how it differs from traditional file system.	[8M]
	b)	Explain in detail about the three tier schema architecture of DBMS.	[8M]
3	a)	Describe the concept of Referential Integrity.	[8M]
	b)	List and explain the common data types available in SQL.	[8M]
4	a)	Differentiate specialization and generalization.	[8M]
	b)	What is a view? How views are implemented?	[8M]
5	a)	What is meant by the closure of functional dependencies? Illustrate with an example.	[7M]
	b)	State 1NF, 2NF & 3NF and explain with examples.	[9M]
6	a)	Discuss about different types of failures.	[8M]
	b)	What is 2-phase locking protocol? How does it guarantee serializability?	[8M]
7	a)	Explain in detail about external hashing techniques.	[8M]
	b)	By considering an example, show how to reduce access time with primary index.	[8M]

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Code No: RT31054 **R13** SET - 3

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Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	List out the characteristics of database system.	[3M]
	b)	Distinguish between primary and super keys.	[4M]
	c)	Specify and explain various structural constraints of relationship type.	[4M]
	d)	Mention the desirable properties of relation decomposition.	[4M]
	e)	Describe Wait/Die & Wound/Wait protocols.	[4M]
	f)	Differentiate between internaland external hashing.	[3M]

PART –B

2	a)	Discuss the activities of different database users.	[8M]
	b)	Briefly describe various architectures of database systems.	[8M]
3	a)	Write a short notes on i) Foreign Key ii) Relation state iii) Database schema.	[12M]
	b)	Write and explain the structure of SQL SELECT statement with suitable example.	[4M]
4	a)	Discuss in detail about the concepts of E-R model with suitable examples.	[8M]
	b)	What is a group function? List and explain how to use group functions in SQL with appropriate examples.	[8M]
5	a)	State the Armstrong inference rules. Provide suitable examples to describe each.	[8M]
	b)	Show how to preserve Functional Dependencies during decomposition.	[8M]
6	a)	Why the concurrency control is needed? Explain it.	[8M]
	b)	Write and explain optimistic concurrency control algorithm.	[8M]
7	a)	When does a collision occur in hashing? Illustrate various collision resolution techniques.	[8M]
	b)	Describe different methods of defining indexes on multiple keys.	[8M]

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Code No: RT31054 **R13** SET - 4

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Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	What is Data Independence? Why is it essential?	[4M]
	b)	Define Database Schema Explain it with example.	[4M]
	c)	Write Syntax of SQL Order By and Group By clauses.	[4M]
	d)	Define Surrogate Key. Explain it.	[3M]
	e)	Explain WAL protocol.	[4M]
	f)	Brief extendible hashing scheme.	[3M]

PART –B

2	a)	Compare the database system with conventional file system.	[8M]
	b)	Describe in detail about two-tier and three-tier client-server architectures.	[8M]
3	a)	Explain the importance of avoiding NULL values in a database.	[4M]
	b)	Write short notes on i) DDL ii) DML iii) Database Schema.	[12M
4	a)	Explain about various constraints used in ER-model.	[8M]
	b)	Differentiate between independent and correlated nested queries.	[8M]
5	a)	What is normalization? Explain its need.	[4M]
	b)	Discuss in detail about various normal forms.	[12M
6	a)	Write short notes on: i) Phantom Record ii) Repeatable Read iii) Incorrect Summary iv) Dirty Read.	[8M]
	b)	Describe Wait/Die and Wound/Wait deadlock protocols.	[8M]
7	a)	Discuss in detail about primary file organization.	[8M]
	b)	By considering relevant example, show insertion and deletion operations on a B-Tree.	[8M]

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