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

III B. Tech I Semester Regular/Supplementary Examinations, October/November - 2017

DATABASE MANAGEMENT SYSTEMS

(Common to Computer Science Engineering and Information Technology)

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)	Define Database Management Systems.	[4M]
	b)	Why we need integrity constraints?	[3M]
	c)	What are the major components used in E-R diagram design ?	[4M]
	d)	Why do we need normalization?	[3M]
	e)	Illustrate transaction properties.	[4M]
	f)	Differentiate volatile and non volatile storage.	[4M]

PART -B

2	a)	What is Data Base Administrator? Discuss the functions of DBA.	[8M]
	b)	Explain DBMS applications.	[8M]
3	a)	How do we represent null values? Discuss the importance of handling null values.	[8M]
	b)	Discuss in detail the operators SELECT, PROJECT and UNION with suitable examples.	[8M]
4	a)	Explain about the following clauses with example queries. (i) Group by (ii) Order by (iii) Aggregation functions.	[8M]
	b)	How to maintain class hierarchies in ER-Diagrams? Explain with employee database.	[8M]
5	a)	Explain the advantages of decomposition? Discuss the problems faced in decomposition.	[8M]
	b)	Explain the functional dependency with multi-valued dependencies with example.	[8M]
6	a)	Discuss about conflict Serializability with an example.	[8M]
	b)	What is 2-phase locking protocol? Compare 2PL with Strict 2PL protocol.	[8M]
7	a)	Write short notes on the following topics. (i) Optical disk. (ii) Magnetic tapes.	[8M]
	b)	Write about indexed sequential files with advantages and disadvantages.	[8M]

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PART –A

1	a)	What are the disadvantages in file system?	[4M]
	b)	Give syntaxes to Create and Alter a table.	[4M]
	c)	List aggregate functions supported by SQL.	[3M]
	d)	What is surrogate key?	[3M]
	e)	What is Deadlock? Write its conditions.	[4M]
	f)	Define single level and multilevel indexing.	[4M]

PART -B

2	a)	What is data independence? Discuss three tire schema architecture of data independence.	[8M]
	b)	Explain storage manager component.	[8M]
3	a)	Explain the role of views. Why role got importance? What are the problems in view updating?	[8M]
	b)	Give syntax for DML commands? Show their operations with an example?	[8M]
4	a)	Explain the following terms: (i) Entity and entity set. (ii) Attribute and attribute sets. (iii) Relationship and relationship sets.	[8M]
	b)	Define generalization and aggregation. Demonstrate generalization and aggregation using E-R diagram.	[8M]
5	a)	Explain 3NF with example and Compare BCNF and 3NF.	[8M]
	b)	Explain t 4NFs. How it is different from other normal forms?	[8M]
6	a)	Discuss write-ahead log protocol and check pointing.	[8M]
	b)	Explain Two Phase- Locking protocol .What benefit does strict two-phase locking protocol provides? Discuss its disadvantages.	[8M]
7	a)	Explain how B+ tree eliminate the redundant storage of search key values.	[8M]
	b)	Explain Dense and Sparse indices.	[8M]

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

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Time: 3 hours Max. Marks: 70

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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)	Explain object-oriented data model.	[4M]
	b)	Differentiate between primary key and a candidate key.	[4M]
	c)	List and Explain SET operations of SQL.	[3M]
	d)	What is 3NF?	[3M]
	e)	Why do we need locks? Explain.	[4M]
	f)	What are the disadvantages of static hashing?	[4M]

PART -B

2	a)	Explain briefly the languages supported by database systems.	[8M]
	b)	What is Data modeling? Explain relational model.	[8M]
3	a)	Why foreign key constraints are important? Explain with employee database.	[8M]
	b)	What is meant by referential integrity? Explain.	[8M]
4	a)	Where do we need nesting of queries? Give an example.	[8M]
	b)	Differentiate between updatable views and non updatable views?	[8M]
5	a)	Is the decomposition in 4NF always dependency preserving and lossless? Explain with an example,	[8M]
	b)	Consider the following relation R(A,B,C,D,E)and FD's A→BC, C→A,D→E, F→A, E→D is the decomposition of R into R1(A, C, D), R2(B, C, D) AND R3(E,F,D) lossless?	[8M]
6	a)	What is time stamp ordering? Explain how it is used for concurrency control?	[8M]
	b)	Explain view Serializability with an example? How it is different from conflict Serializability?	[8M]
7	a)	Explain Open hashing? Discuss their advantages and disadvantages.	[8M]
	b)	Compare dynamic hashing with static hashing.	[8M]

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

III B. Tech I Semester Regular/Supplementary Examinations, October/November - 2017

DATABASE MANAGEMENT SYSTEMS

(Common to Computer Science Engineering and Information Technology)

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 various types of database users. Explain.	[4M]
	b)	What is the instance of a relation?	[3M]
	c)	Write string operations supported by SQL.	[4M]
	d)	What is functional dependency?	[3M]
	e)	Explain the advantages of check pointing.	[4M]
	f)	Explain primary and secondary indexes.	[4M]

PART -B

2	a)	Discuss abstract view of data with diagram.	[8M]
	b)	Explain about Entity-Relationship model with an example.	[8M]
3	a)	Consider the following relation schema: Sailors(sid: integer, sname: string, rating: integer, age: real) Boat(bid: integer, bname: string, color: string) Reserves(sid: integer, bid: integer, day: date) Write the following queries in SQL. (i) Find the average age of the sailor who are eligible for voting for each rating level that has at least two sailors. (ii) Find the name of sailors who have reserved both red and a green boat. (iii) Find the sailor_id of sailors who have reserved a red boat	[8M]
	b)	Explain about domain constraints and key constraints.	[8M]
4	a)	Discuss the following clauses with examples (i) HAVING (ii) GROUP BY iii) Relational set operations.	[8M]
	b)	What is a join? Discuss different types of joins.	[8M]
5	a)	Explain the purpose of normalization and schema refinement.	[8M]
	b)	Explain the role of minimal cover for set of FDs in 3rd normal form.	[8M]
6	a)	How to perform rollback, commit, check pointing operations on transactions? Explain.	[8M]
	b)	Discuss Various anomalies caused due to interleaved execution with examples.	[8M]
7	a)	Explain about hash based indexing with an example.	[8M]
	b)	What is dynamic hashing? Give the implementation details of it.	[8M]

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