Code No. 3150 / O / S

FACULTY OF ENGINEERING

B.E. 3/4 (CSE) I-Semester (Old) Examination, May / June 2017

Subject : Database Management System

Time : 3 hours **Max. Marks : 75**

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

1	Explain the differences between physical and logical independence.		2
2	Explain weak entity and strong entity with example.		3
3	Express right outer join in relational algebra with example.		2
4	Discuss about embedded SQL.		3
5	Describe about integrity constraints.		3
6	Define 3 NF. Give an example.		2
7	What is the difference between primary index and secondary index?		2
8	Define ACID properties.		3
9	Explain Thoma's write rule.		3
10	What is meant by 'Database Buffering'?		2

PART – B (50 Marks)

11	a)	Discuss the architecture of DBMS.	5
	b)	Write about the decomposition using multivalue dependencies.	5
12	a)	Explain the reduction of E-R model to relational schema.	6
	b)	Differentiate between group by and order by clauses in SQL.	4
13	a)	Explain the functionality of following operations in relational algebra. i) Division ii) Select iii) Cartesian product	6
	b)	Write short notes on recursive queries with example.	4
14	a)	Explain the concept of functional depencies in normal forms with an example.	6
	b)	What are the features of good relational designs?	4
15	a)	Explain recoverable schedules and cascadeles schedules.	4
	b)	Discuss B+ tree index file with an example. Explain its importance in databases.	6
16	a)	Differentiate between 'conflict equivalence' and 'conflict serializability'.	5
	b)	What is the functionality of time-stamp based protocols?	5
17	Write short notes on the : a) Embedded SQL b) ARIES c) Recoverability		10

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Code No. 3431 N / S

FACULTY OF ENGINEERING

B.E. 3/4 (CSE) I – Semester (Suppl.) Examination, May / June 2017

Subject: Database Management Systems

Time: 3 Hours **Max.Marks: 75**

Note: Answer all questions from Part A and any five questions from Part B.

PART – A (25 Marks)

1		Define Assertion? Write the Syntax?	2
2		Define weak entity set? How a weak entity set is represented in E-R Model?	2
3		What is DML? List the various types of DML statements.	3
4		Define natural Join. Explain the natural join using SQL query.	3
5		Define trigger. Write a syntax for trigger.	2
6		What is Authorization? Different types of authorization that database needs to satisfy.	2
7		What are the different states in a transaction that a process goes before committing in database?	3
8		Define Conflict Serializability? Draw the Truth table for it using Read and Write Operations?	3
9		What is Stable Storage?	2
10		Explain Cascadeless schedules?	3

PART – B (5x10 = 50 Marks)

11	a)	List the various applications of Databases.	5
	b)	Explain different architectures of database applications?	5
12	a)	Explain the Fundamental relational algebra operations?	4
	b)	Consider the following Relational Schema	6

employee (person name, street, city)

works (person name, company name, salary)

company (company name, city)

manages (person name, manager name)

the primary keys are underlined, write SQL queries.

i) Find names of employees who live in the same city and on the same street as do their managers.

ii) Find all employees who earns more than average salaries of all employees of their company.

13 a) Define function in database? Write the syntax? 4

b) Differentiate between Sparse and Dense indexing techniques? 6

14 a) Construct B+ tree index structure for the given search keys that can accommodate four (4) pointers in a node. 5

3 5 7 11 17 19 23 29 31 35 39

b) Check the following given schedule is Conflict serializable or not, for READ (X) and WRITE (X) instruction. Where 5

T= { $R_1(A);R_2(A);W_2(A);R_2(B),W_1(A),R_1(B),W_1(B);W_2(B)$} using precedence graph?

15 a) Explain Time-Stamp based locking protocol? 5

b) Explain ARIES Algorithm? 5

16 a) What is Phantom problem? Explain. 4

b) Explain Recoverability in detail. 6

17 Write short notes on the following: 10

a) Arm strong axioms

b) Bitmap Indices.

c) Dynamic SQL.

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Code No. 3157 / O / S

FACULTY OF INFORMATICS

B.E. 3/4 (IT) I – Semester (Old) Examination, May / June 2017

Subject: Database Management Systems

Time: 3 Hours **Max.Marks: 75**

Note: Answer all questions from Part A and any five questions from Part B.

PART – A (25 Marks)

1 State the purpose of database model.

2 What is derived attributes in E-R diagram? Give an example.

3 List fundamental relational algebra operations with their symbolic representation.

4 What is outer join? Write about different types of it.

5 Give any two examples of integrity constraints.

6 Compare BCNF and 3NF.

7 Write about any two types of order indices.

8 Specify ACID properties.

9 Write about the types of locks in database.

10 Discuss why “stable storage not implemented”.

PART – B (50 Marks)

11 a) Discuss major advantages of a database system. 7

b) Explain the concept of generalization specification in extended E-R model. 3

12 a) Write about fundamental relation algebra operations with an example for each. 6

b) What is difference between a weak and strong entity set with an example. 4

13 a) Explain any five integrity constraints with examples. 7

b) Discuss different authorization in SQL with necessary commands to grant them. 3

14 a) Explain about decomposition using functional dependency. 5

b) Compare ordered indexing and hashing. 5

15 Show that 2 phase locking protocol ensures conflict serializability in detail and that transactions can be serialized according to their lock points. 10

16 a) Write the usage of B^+ trees. Explain with example. 5

b) Explain ARIES recovery algorithm. 5

17 Write short notes on:

1) Extended SQL 3

2) Remote Backup system 3

3) Timestamp based protocol 4

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Code No. 3438 / N / S

FACULTY OF INFORMATICS

B.E. 3/4 (IT) I – Semester (New) (Suppl.) Examination, May / June 2017

Subject: Database Management Systems

Time: 3 Hours **Max.Marks: 75**

Note: Answer all questions from Part A. Answer any five questions from Part B.

PART – A (25 Marks)

1 Define a view. What is the need for creating views? (2)

2 What are the different levels of abstraction? (3)

3 What is Referential integrity? (2)

4 Distinguish between static and dynamic hashing (3)

5 Differentiate between Primary and secondary indices (2)

6 Draw state diagram of a transaction. (3)

7 List the responsibilities of DBA. (3)

8 List the two modes of locks on data items. (2)

9 Write Armstrong's axioms. (2)

10 What are remote backup systems? (3)

PART – B (5x10 = 50 Marks)

11 a) Illustrate with figures database architecture. (6)

b) List and explain the different Data Models. (4)

12 a) What are nested subqueries? Explain with examples. (6)

b) Explain different types of Joins with examples. (4)

13 What is normalization? Explain the need for normalization. Explain different forms of normalization along with examples . (10)

14 Construct B+-tree for the following keys when n=4
2,3,5,7,11,17,19,23,29,31 (10)

15 a) Explain 2-phase locking protocol along with its versions (6)

b) Explain how recovery can be done using log records. (4)

16 Define E-R diagram. Explain extended E-R features. Give example for each. (10)

17 Write short notes on:

a) Embedded SQL (3)
b) Types of attributes (2)
c) Relational algebra operations (5)

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