FACULTY OF ENGINEERING
B.E. 3/4 (CSE) I - Semester (Backlog) Examination, May / June 2019

Subject : Database Management Systems

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

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

PART – A (25 Marks)

1 Write responsibilities of database administrators. (3)
2 Compare file system and DBMS. (3)
3 Define a) Primary key b) Super Key (2)
4 Write about rename and division operators in relational algebra. (2)
5 Define the following constraints a) NOT NULL b) UNIQUE c) CHECK (3)
6 Write about authorization or how privileges are granted in SQL. (3)
7 Define Sparse and Dense indices. (2)
8 What is functional dependency? (2)
9 Write short notes on shadow paging. (3)
10 Write about ARIES (2)

PART – B (50 Marks)

11 a) Describe different subsystems of a database. (5)
    b) Explain the concept of specialization and generalization in E-R model with suitable examples. (5)

12 a) Explain briefly about extended relational algebra operations. (7)
    b) Explain about mapping cardinalities. (3)

13 a) Explain about Embedded SQL and Dynamic SQL. (6)
    b) Differentiate Between 3NF and BCNF. (4)

14 Compare static and dynamic hashing Show the extendable hash structure for the search key values 2,3,5,7,11,17,19,23,29,31 where h(x)=x mod 8 and buckets can hold 3 records. (10)

15 a) Explain ACID properties in detail. (5)
    b) Explain Thomas write rule. (5)

16 Write about multiple granuality and validation based protocol in detail. (10)

17 Write short notes on (10)
    (a) B + tree
    (b) Serializability
    (c) E-R Diagrams

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

PART – A (25 Marks)

1	Differentiate between data base and data structure.	2
2	Explain about representation of weak entity set.	3
3	What is the difference between 'char' and 'varchar' in SQL?	2
4	Explain about set-difference operation in relational algebra with example.	3
5	What is difference between function and procedure?	2
6	Explain 2NF with an example.	3
7	What is difference between static hashing and dynamic hashing?	2
8	Draw and explain transaction state diagram.	3
9	Write characteristics of Bt-Tree.	2
10	Explain about check-points.	3

PART – B (50 Marks)

11	List explain various ER design issues with examples.	10
12	Explain various types of joins in SQL with examples.	10
13	Explain about Armstrong axioms and multivalued dependencies.	10
14	Explain in detail about time-stamp based protocols.	10
15	What is the usage of remote back up system and ARIES algorithm? Explain in detail.	10

16 Explain about   a) authorization in SQL   5
                           b) mapping cardinality in ERD   5

17 Write short notes on :
   a) Non-Binary relationship set   2
   b) Recursive Query   3
   c) Dense indices   2
   d) Dynamic SQL   3

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