Code No: 135CA **R16**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, November/December - 2018
DATABASE MANAGEMENT SYSTEMS
(Common to CE, EEE, ME, ECE, EIE, MCT, CEE, MSNT)

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

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a)	Define the terms: Relational Databases, Tables.	[2]
b)	Write down the applications of DBMS.	[3]
c)	Define Trigger and give an example.	[2]
d)	Write down the various aggregate operators of SQL.	[3]
e)	Mention the properties of decomposition.	[2]
f)	Define BCNF. Write down its basic properties.	[3]
g)	Define multiple granularity.	[2]
h)	What do you mean by 2PL?	[3]
i)	Differentiate Extendible vs. Linear Hashing.	[2]
j)	What are the advantages and disadvantages of B+ trees?	[3]

PART - B

(50 Marks)

2.a) Explain the Database system structure.
b) Explain various DDL and DML commands. [5+5]

OR

3.a) Define ER model and explain the following kinds of constraints that can be specified in the ER diagram, and give an example of each: i) key constraint ii) participation constraint.
b) How to destroy and alter tables in a DBMS? [6+4]

4. Explain about the following:
a) Domain relational calculus.
b) Specifying foreign key constraints in SQL with an example. [5+5]

OR

5. Consider the following relations
Sailors (sid, sname, rating, age)
Boats (bid, bname, color)
Reserves (sid, bid, day)
Write the statements in Relational Algebra, Relational Calculus, Domain Relational Calculus and SQL for the following questions.
a) Find the names of sailors who have reserved a Red boat.
b) Find the names of sailors who have reserved at least one boat.
c) Find the names of sailors who have reserved a Red and a Green boat.
d) Find the names of sailors who have reserved a Red or a White boat.
e) Find the names of sailors who have reserved all boats. [10]

6.a) When is the decomposition of a relation schema R into two relation schemas X and Y said to be lossless-join decomposition? Why is this property so important? Give a necessary and sufficient condition to test whether a decomposition is lossless-join.

b) Explain 3NF with examples. [5+5]

OR

7. Discuss the need for schema refinement. Explain the fourth and fifth normal form and inclusion dependencies. [10]

8.a) Discuss the impact of early lock release and logical undo operations in recovery system.

b) Explain about Concurrent execution of transactions. [5+5]

OR

9. Write and explain the Time stamped and optimistic concurrency control algorithms. [10]

10. State and explain various file organisation methods. Give suitable examples to each them. [10]

OR

11.a) Discuss insert, delete, search operations on and B+ trees.

b) What are the Pros and Cons of ISAM? [5+5]

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