Code No: 124CQ

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech II Year II Semester Examinations, April/May - 2023
DATABASE MANAGEMENT SYSTEMS
(Common to CSE, IT)

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

Note: i) Question paper consists of Part A, Part B.
      ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
      iii) In Part B, Answer any one question from each unit. Each question carries 10 marks
           and may have a, b as sub questions.

PART- A

(25 Marks)

1.a)	Distinguish between super key and Candidate key.	[2]
b)	How do you represent the following in E-R model?	
	i) Week entity set ii) Role iii) Strong entity set	[3]
c)	What are various Domain constraints SQL?	[2]
d)	Explain tuple relational calculus.	[3]
e)	Define functional dependencies with example.	[2]
f)	What are the conditions for 2NF with example?	[3]
g)	Explain about durability of transaction.	[2]
h)	Explain about the multiple granularity.	[3]
i)	What is the order of B+ tree?	[2]
j)	What is difference between Indexing and hashing?	[3]

PART-B

(50 Marks)

2.a)	What are the goals and advantages of DBMS?	
b)	Develop an E-R Diagram for any Banking enterprise system.	[5+5]

OR

3.a)	What are the functions of Database Administrator?	
b)	What is data model? Explain Relational Model and E-R model.	[5+5]

4.a)	What are *NULL* values? Are they supported in relational model? How do they effect the meaning of queries? Can primary key fields of table contain null values?	
b)	What is the difference between tuple relation calculus and domain relation calculus?	[5+5]

OR

5.a)	What aggregate operators does SQL support ? Explain.	
b)	Explain how to implement triggers in SQL.	[5+5]

6.a) Explain about the Functional dependency and Multivalued dependency.
  b) What are the conditions required for a relation to be in 3NF and 4NF? Explain.   [5+5]

OR

7.a) Explain about the lossless join and dependency preserving with examples.
  b) Compute the closer of the following set of functional dependencies for a relation scheme. R(A,B,C,D,E,F,G,H),   F={AB→C, A→DE, B→F,F→GH}. List out the candidate keys of R.   [5+5]

8.a) Explain Multiple granularity locking approach and how does it works.
  b) What is log file? Explain the following log based recovery schemes:
     i) Deferred data base modification   ii) immediate data base modification.   [5+5]

OR

9.a) Show that the two phase locking protocol ensure the conflict serializability and that transactions can be serialized according to their locks.
  b) Explain about remote backup systems.   [5+5]

10.a) How does ISAM handles insert and delete operations? Explain.
   b) Discuss the relationship between Extendible and Linear Hashing. What are their relative merits and demerits?   [5+5]

OR

11.a) What is indexing? Explain the cluster index, primary and secondary indexes with examples.
   b) Differentiate between tree based and Hash based indexes.   [5+5]

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