R15

Code No: 823AC

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
MCA III Semester Examinations, June/July - 2018
DATABASE MANAGEMENT SYSTEMS

Time: 3hrs   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

5 × 5 Marks = 25

1.a)   Define types of relationships in ER diagram.   [5]
  b)   Explain types of Logical connectivity's.   [5]
  c)   Differentiate Lossy and Lossless decomposition.   [5]
  d)   What is ARIES?   [5]
  e)   Define Structure of B+ trees.   [5]

PART - B

5 × 10 Marks = 50

2.   Define ER model and Explain the following kinds of constraints that can be specified in the ER diagram, and give an example of each: a) key constraint b) participation constraint.
                                                                            [10]
OR
3.   Define Data Model. Explain types of data models with suitable examples. Exaplin.[10]

4.   Explain in detail about Relational Algebra, Domain Relational Calculus and Tuple Relational Calculus with suitable examples.   [10]
OR
5.a)   What is an unsafe query? Give an example and explain why it is important to disallow such queries?
  b)   What is relational completeness? If a query language is relationally complete, can you write any desired query in that language? Justify.   [5+5]

6.a)   What are the properties of Decomposition? Discuss about loss less join Decomposition.
  b)   What is meant by functional dependency and multi valued dependency? [5+5]
OR
7.a)   Consider a relation R with five attributes ABCDE. You are given the following Dependencies: A -> B, BC -> E, and ED -> A.
       i) List all keys for R   ii) Is R in 3NF?   iii) Is R in BCNF.
  b)   Which of the following decompositions of R=ABCDEG, with the same set of dependencies

       F, is (i) Dependency-preserving?   (ii) Lossless-join?
       I) {AB, BC, ABDE, EG}   II) {ABC, ACDE, ADG}   [5+5]

8.   State and explain various Lock-based concurrency control mechanisms and algorithms.
                                                                                     [10]

OR

9.   What is Deadlock? Discuss the methods for handling Deadlocks.   [10]

10. Explain the File organization types and its techniques.   [10]

OR

11. What are Index data structures? Explain with suitable examples the hash based indexing.
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