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### **R15** Code No: 823AC JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD MCA III Semester Examinations, June/July - 2018 **DATABASE MANAGEMENT SYSTEMS** Max.Marks:75

## Time: 3hrs

**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

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

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- Define Data Model. Explain types of data models with suitable examples. Exaplin.[10] 3.
- Explain in detail about Relational Algebra, Domain Relational Calculus and Tuple 4. Relational Calculus with suitable examples. [10]

## OR

- What is an unsafe query? Give an example and explain why it is important to disallow such 5.a) queries?
- What is relational completeness? If a query language is relationally complete, can you b) write any desired query in that language? Justify. [5+5]
- What are the properties of Decomposition? Discuss about loss less join Decomposition. 6.a)
- What is meant by functional dependency and multi valued dependency? b) [5+5]

## OR

- Consider a relation R with five attributes ABCDE. You are given the following 7.a) Dependencies:  $A \rightarrow B$ ,  $BC \rightarrow E$ , and  $ED \rightarrow A$ . i) List all keys for R ii) Is R in 3NF? iii) Is R in BCNF.
  - Which of the following decompositions of R=ABCDEG, with the same set of dependencies b) F, is (i) Dependency-preserving? (ii) Lossless-join? I) {AB, BC, ABDE, EG} II) {ABC, ACDE, ADG} [5+5]

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## $5 \times 5$ Marks = 25



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8.	State and explain various Lock-based concurrency control mechanisms and algor	ithms.
		[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 in	dexing.
		[10]

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