Code No: R163201B **R16** SET - 1

III B. Tech II Semester Regular Examinations, April/May - 2019

DATA BASE MANAGEMENT SYSTEMS

(Common to Civil Engineering, Mechanical Engineering, Aeronautical Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**

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PART –A

1.	a)	Write the responsibilities of Database Administrator.	[2M]
	b)	What is surrogate key? Give an example.	[2M]
	c)	Illustrate lost update problem with suitable example.	[2M]
	d)	Show how data integrity can be guaranteed by using different database constraints.	[3M]
	e)	Briefly discuss correlated nested queries.	[3M]
	f)	What is the difference between a primary index and a secondary index?	[2M]

PART –B

2.	a)	Describe the client server architecture for the database with necessary diagram.	[7M]
	b)	Discuss applications of Database.	[7M]
3.	a)	Consider the following relational schemas. Write the following queries in relational algebra, tuple relational calculus, and SQL: Suppliers(sid: integer, sname: string, address: string) Parts(pid: integer, pname: string, color: string) Catalog(sid: integer, pid: integer, cost: real) (i) Find the sids of suppliers who supply every red part or supply every green part. (ii) Find pairs of sids such that the supplier with the first sid charges more for some part than the supplier with the second sid. (iii) Find the pids of parts supplied by at least two different suppliers.	[10M]
	b)	Discuss the importance of entity integrity and referential integrity constraints.	[4M]
4.	a)	What is a join? Discuss different types of joins.	[7M]
	b)	How to maintain class hierarchies in ER-Diagrams? And how various constraints can be modelled in ER-Diagram? Explain with employee database.	[7M]
5.	a)	How to find closure of an attribute based on a given set of FDs? Write the steps of the algorithm and explain with an example by specifying corresponding inference rules applied.	[7M]
	b)	Is the decomposition in 4NF always dependency preserving and lossless? Explain with an example.	[7M]
6.	a)	Describe Wait/Die and Wound/Wait deadlock protocols.	[6M]
	b)	Discuss three integrity and consistency problems occurred while concurrent execution of transactions with examples.	[8M]
7.	a)	Compare and contrast between heap files and sorted files by considering different search operation, insert and delete.	[8M]
	b)	What is an index? Explain its role in improving database access.	[6M]

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