II B. Tech II Semester Supplementary Examinations, February - 2022
DATABASE MANAGEMENT SYSTEMS
(Com to CSE, IT)

Time: 3 hours　　　　　　　　　　　　　　　　　　　　　　　　Max. Marks: 75

Answer any **FIVE** Questions each Question from each unit
All Questions carry **Equal** Marks
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1	a)	Draw and explain the structure of database.	[8M]
	b)	Describe three tier schema architecture for data independence.	[7M]

Or

2	a)	Discuss about the centralized architecture of database in detail.	[8M]
	b)	Briefly discuss about various types of data models.	[7M]

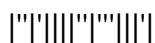|		
3	Consider the following relational database. Give an expression in SQL for each of the following queries. employee (<u>employee-name</u>, street, city) works (<u>employee-name</u>, company-name, salary) company (<u>company-name</u>, city) manages (<u>employee-name</u>, manager-name) a. Modify the database so that Jones now lives in Newtown. b. Give all employees of First Bank Corporation a 10 percent raise. c. Give all managers of First Bank Corporation a 10 percent raise. d. Give all managers of First Bank Corporation a 10 percent raise unless the salary becomes greater than $100,000; in such cases, give only a 3 percent raise. e. Delete all tuples in the works relation for employees of Small Bank Corporation.	[15M]

Or

4	a)	What is the importance of null values? Explain with examples.	[8M]
	b)	What are set operations of SQL? Explain.	[7M]

5	A university registrar's office maintains data about the following entities: (a) courses, including number, title, credits, syllabus, and prerequisites; (b) course offerings, including course number, year, semester, section number, instructor(s),timings, and classroom; (c) students, including student-id, name, and program; and (d) instructors, including identification number, name, department, and title. Further, the enrollment of students in courses and grades awarded to students in each course they are enrolled for must be appropriately modeled. Construct an E-R diagram for the registrar's office. Document all assumptions that you make about the mapping constraints.	[15M]

Or

6	a)	Explain the distinctions among the terms primary key, candidate key, and superkey.	[8M]
	b)	What is a nested query? Explain with SQL examples.	[7M]

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7 a) Explain 1NF, 2NF and 3NF in detail with suitable examples. [8M]

b) Define multivalued dependency. Explain decomposition using multivalued dependencies. [7M]

Or

8 a) Compute the closure of the following set F of functional dependencies for relation schema R = (A, B, C, D, E). [8M]

$$A \rightarrow BC$$
$$CD \rightarrow E$$
$$B \rightarrow D$$
$$E \rightarrow A$$

List the candidate keys for R.

b) Give asset o FDs for the relation schema R(A,B,C,D) with primary key AB under which R is in 1NF but not in 2NF. [7M]

9 Explain the following:

a) State diagram of a transaction [5M]

b) Cluster indexes [5M]

c) Tree based indexing [5M]

Or

10 Explain the following:

a) Deletion algorithm of B+ tree [5M]

b) Conflict serializability [5M]

c) Linear hashing [5M]