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Paper Id: 236488   **Roll No.** ☐☐☐☐☐☐☐☐☐☐☐

B.TECH.
(SEM VI) THEORY EXAMINATION 2022-23
BASICS OF DATA BASE MANAGEMENT SYSTEM

Time: 3 Hours   *Total Marks: 100*

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1.   **Attempt *all* questions in brief.**   **2 x 10 = 20**

a.   Define Database, DBMS, and Metadata.

b.   Discuss the problems with File systems.

c.   Define Instance and Domain.

d.   Define Recursive Relationship with example.

e.   Define 3NF and BCNF.

f.   Define the term Data Dictionary.

g.   List and describeSQL Logical Operators in brief.

h.   Describe DROP command with options.

i.   Define Two Phase Commit protocol.

j.   Define a checkpoint.

SECTION B

2.   **Attempt any *three* of the following:**   **10x3=30**

a.   Define Data Abstraction and discuss levels of Abstraction.

b.   Explain about different types of integrity constraints with examples.

c.   Illustrate Group by and Having clauses with examples.

d.   Define decomposition and how does it address redundancy? Discuss the problems that may be caused by the use of decompositions?

e.   Discuss Serializability in detail.

SECTION C

3.   **Attempt any *one* part of the following:**   **10x1=10**

a.   Describe the Structure of DBMS. Write about views and updates on views.

b.   Distinguish strong entity set with weak entity set. Draw an ER diagram to illustrate weak entity set?

4. **Attempt any *one* part of the following:** 10x1=10

a. Define Join. Explain different types of joins.

b. Discuss different types of aggregate operators with examples in SQL?

5. **Attempt any *one* part of the following:** 10x1=10

a. Define functional dependencies and relation of primary keys with FD's?

b. Illustrate Multivalued dependencies and Fourth normal form with example.

6. **Attempt any *one* part of the following:** 10x1=10

a. Explain ACID properties and Illustrate them through examples.

b. Describe Validation-based locking protocols. Discuss in detail Multiple Granularity.

7. **Attempt any *one* part of the following:** 10x1=10

a. Explain different types of Recovery Techniques.

b. Explain Armstrong's inference rules?
Suppose we are given relation R with attributes A, B, C, D, E, F, and the FDs,
A→BC, B →E, CD →EF. Prove that FD: AD→F also holds in R.