

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 describe SQL 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, $A \rightarrow BC$, $B \rightarrow E$, $CD \rightarrow EF$. Prove that FD: $AD \rightarrow F$ also holds in R.