Part–A

Q. 1. Differentiate between physical schema and logical schema. 2

Q. 2. Give the properties of decomposition. 2

Q. 3. Define dense index. 2

Q. 4. What is meant by log-based recovery ? 2

Q. 5. Outline the use of commit and rollback. 2

Q. 6. State the need for concurrency. 2

Q. 7. Distinguish between threats and risks. 2

Q. 8. What do you mean by allocation schema ? 2

Q. 9. Define :

(i) super key

(ii) candidate key 2

Q. 10. Define the terms arity and cardinality of relation. 2

Part–B

Q. 1. Distinguish strong entity set with weak entity set ? Illustrate the same using ER diagram. 4

Q. 2. Define trigger and explain its three parts ? Differentiate row level and statement level triggers ? 4

Q. 3. Discuss with suitable examples different types of aggregate operators with examples in SQL ? 4

Q. 4. Define decomposition and how does it address redundancy ? Discuss the problems that may be caused using decompositions ? 4

Q. 5. Compare and contrast BCNF with 3NF ? 4

Q. 6. Illustrate Concurrent execution of transaction with examples. 4

Q. 7. Discuss two phase locking protocol and strict two-phase locking protocols. 4

Part–C

Q. 1. Discuss and illustrate with suitable examples insertion and deletion of elements in B+ tree.

Q. 2. Narrate the actions that are considered for deadlock detection and the recovery from deadlock. 10

Q. 3. What is query optimization ? Outline the steps in query optimization. 10

Q. 4. State and explain lock-based concurrency control with suitable examples. 10

Q. 5. Discuss the violations caused by each of the following :

dirty read, non-repeatable read, and phantoms with suitable examples. 10

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