FACULTY OF ENGINEERING

B.E. (CSE) IV–Semester (AICTE) (New) (Main & Backlog) Examinations, September/October 2023

Subject: Database Management Systems

Time: 3 Hours **Max. Marks: 70**

Note: (i) First question is compulsory and answer any four questions from the remaining six questions. Each questions carries 14 Marks.
(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.
(iii) Missing data, if any, may be suitably assumed.

1. (a) What are the Objectives of Sequential File Organization? List them?
   (b) Define Assertion? Create an assertion on a particular table which restricts NULL values?
   (c) Define Strong and Weak entity set?
   (d) Difference between Sparse and Dense Index?
   (e) Differentiate between Simple view and Complex view?
   (f) Write a query for creating a view and dropping a view?
   (g) What is a procedure? Write a procedure for adding two numbers?

2. (a) Draw Three-schema architecture? Justify the difference between Logical data independence and data independence with proper example for each of them?
   (b) What is Relational Algebra? Write a query that differentiates SELECT statement in SQL with respect to relational algebra query?

3. (a) Define generalization and specialization in ER model? How to combine entities in ER model, illustrate with a neat diagram using Aggregation?
   (b) What is BCNF is considered as Strong form of normalization? How it is different from 3NF, explain with suitable example?

4. (a) Why do we create indexes? What are different types of Single Level ordered Indexes?
   (b) Check whether the following given schedule is Conflict serializable or not, for the given a set of transaction (T) for READ(X) and WRITE(X) where
   T={ R1(A);R2(A);W2(A);R2(B),W1(A),R1(B),W1(B);W2(B) } using Precedence graph?

5. (a) Discuss the various types of SET operations used in SQL? Explain with suitable examples?
   (b) Explain the use of *Group by* clause, *Having* clause and *Where* condition in SQL Queries with suitable examples?

6. (a) What are single row operators? write the SQL Queries to explore various multiple row operators (IN, ANY, ALL)?
   (b) Write the Fundamental Relational algebra operations with symbols. And Justify how SELECT(σ) OF Relational algebra operation is different from SQL SELECT Statement, with an example?

7. (a) What are DDL statements explain each of them with suitable examples?
   (b) What is Two-Phase locking Protocol? How it is different from Strict Two-Phase locking protocol?

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