Code No: E-5710/N/BL/AICTE

FACULTY OF ENGINEERING

B.E. (CME/DS/IoT) 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) Differentiate between strong entity set and weak entity set.
   (b) Define (i) Candidate key (ii) Foreign key
   (c) What is embedded SQL?
   (d) Draw and explain state diagram of transaction.
   (e) What do you mean by Blind-Write?
   (f) Discuss briefly about three levels of abstraction.
   (g) List aggregate functions in SQL with their syntax.

2. (a) Explain the differences between File processing system and DBMS.
   (b) Describe E-R model with suitable examples.

3. (a) Discuss fundamental relation algebra operations with examples.
   (b) List and explain various types of SET operations used in SQL with syntax.

4. (a) Define procedure constructs in database. Explain with syntax and example.
   (b) Define Normalization. Explain 1NF, 2NF, 3NF with suitable examples.

5. (a) Construct B+ tree index structure for the given search keys that can accommodate four pointers in a node. 3 5 7 11 17 19 23 29 31 35 39.
   (b) Explain bitmap indices. How they are useful in multi key access?

6. (a) Define deadlocks. Describe deadlock handling in detail.
   (b) Discuss in detail about log based recovery.

7. (a) Explain about serializability.
   (b) Illustrate multiple granularity using compatibility matrix with diagram.

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