M.Sc. II SEMESTER [MAIN/ATKT] EXAMINATION JUNE - JULY 2024

COMPUTER SCIENCE

Paper - IV

[Database Management Systems]

[Max. Marks : 75]   *[Time : 3:00 Hrs.]*   *[Min. Marks : 26]*

Note : Candidate should write his/her Roll Number at the prescribed space on the question paper.
Student should not write anything on question paper.
Attempt five questions. Each question carries an internal choice.
Each question carries **15 marks.**

Q. 1 a) Who is a Database Administrator ? What are the various responsibilities of a DBA ? *(07 Marks)*

b) Draw an ER diagram for library management system. (Assume all necessary entities and their relationships). *(08 Marks)*

OR

a) Differentiate between traditional file system and database approach on the basis of prons and cons. *(07 Marks)*

b) With suitable example explain the process of reduction of E-R schema to tables. *(08 Marks)*

Q. 2 a) What are Aggregate Function ? List the Aggregate function supported by SQL ? *(08 Marks)*

b) List out the operations of the relational algebra ? *(07 Marks)*

OR

Explain following with example - *(5 x 3 = 15 marks)*

i) DDL.

ii) DML.

iii) Embedded SQL.

Q. 3 a) Assess how 'Boyce - codd normal form is found to be stricter than third normal form'. *(08 Marks)*

b) Write about transitive functional dependency ? *(07 Marks)*

OR

Discuss in detail, the join dependency and the Fifth normal form (5NF)? **(15 Marks)**

Q. 4 a) List the phases of two phase locking protocol. **(08 Marks)**

    b) Show the time stamps associated with each data item. **(07 Marks)**

OR

    a) What is concurrency control ? How it is implemented in DBMS ? **(08 Marks)**

    b) What is Dead Lock ? How does it occur ? **(07 Marks)**

Q. 5 a) What is Crash Recovery in DBMS ? Explain with an example. **(08 Marks)**

    b) What is the role of log in crash recovery ? **(07 Marks)**

OR

    a) Discuss about Shadow Paging ? **(08 Marks)**

    b) Explain advance recovery techniques used in DBMS ? **(07 Marks)**

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