1079
B. Engg. (Information Technology)
5th Semester
ITE-571/531: Database Management Systems

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt **five** questions in all, including Q. No. 1 (Section-A) which is compulsory and selecting atleast **two** questions from each Section-B & C.

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Section-A (10 Marks)

Note: All questions in this Section are compulsory. Each question carries 2 marks.

I

(a) What are redundant Attributes? Give examples.   2

(b) Define fully functional dependency in database design.   2

(c) Define DDL and DCL.   2

(d) What is Wait for graph. What is its use?   2

(e) What is lost update problem during transaction processing in SQL?   2

Section-B (20 Marks)

Note: Attempt any two questions. Each question carries 10 marks.

II

(a) Give the examples of each Clustered Index, Sparse Index and Dense Index.

(b) What are B-Trees?   5+5

III

Define the Terms :

(a) Network Model

(b) Hierarchical Model   5+5

IV

(a) List out the advantages of Relational Algebra and Relational Calculus.

(b) Write down the additional Relational-Algebra operations.   5+5

P.T.O.

Section-C (20 Marks)

Note :- Attempt any two questions. Each question carries 10 marks.

V   What are the Integrity Constraints in SQL? What are triggers and Active

Database? Give examples.

5+5

VI   Write down the short note on Serializability and Concurrency.

10

VII   (a) What is Normalization? Define fourth normal forms for a database with

the help of examples.

(b) A relation R (A B C D E F G H) having Functional Dependencies:

F = {   AB → C   G → F

         BC → D   H → A

         E → F   FG → H }

is decomposed in to the relations:

De. R1(A B C D), R2(A B C E F), R3(A D F G H).

Find out:

(i)   Whether the decomposition is dependency preserving or not?

(ii)   Whether the decomposition is lossless or lossy?

5+5

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