

III B. Tech I Semester Supplementary Examinations, August - 2021**DATABASE MANAGEMENT SYSTEMS**

(Common to Computer Science and Engineering, Information Technology)

Time: 3 hours

Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)2. Answer **ALL** the question in **Part-A**3. Answer any **FOUR** Questions from **Part-B**

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**PART -A****(14 Marks)**

1. a) Write any two drawbacks of traditional file processing system for data management. [2M]
- b) Differentiate between Procedural Query language and Declarative Query language. [2M]
- c) What is the importance of triggers in database? [2M]
- d) What is the main purpose of finding the closure of a functional dependency? [3M]
- e) Write about Wait-Die and Wound-Wait. [3M]
- f) Why the nodes at the leaf level are linked in B+ trees? [2M]

**PART -B****(56 Marks)**

2. a) What is a Database Management System? Why would you choose a database system instead of simply storing data in operating system files? [5M]
- b) With a neat diagram, explain the three tier client/server architecture. [5M]
- c) Explain different types of database users in Database management system. [4M]
3. a) Explain the difference between weak entity and strong entity set. How to represent the strong entity and weak entity set through ER diagram? Give an example. [10M]
- b) What is the difference between Inner and Outer Joins? Explain with an example. [4M]
4. a) Explain in detail, the form of a basic SQL query with a suitable example. [7M]
- b) Consider the following TRANS-MSTR table: [7M]  
 TRANS-STR(TNO,ACCNO,DATE,PARTICULAR,DR\_CR,AMT,BAL)  
 Write a database trigger on the TRANS-MSTR that checks the following:
  - i) The transaction amount is not zero and is positive.
  - ii) In case of a withdrawal the amount does not exceed the current balance for that account number.

5. a) Define Multivalued Functional Dependency. [3M]  
b) Explain the Fourth Normal Form by taking a suitable database schema. [4M]  
c) For a given relation  $R=(X,Y,Z,W)$  and functional dependencies  $F=\{XY \rightarrow Z, Y \rightarrow Z, Z \rightarrow W\}$ . [7M]  
Determine the highest normal form of the relation and give explanation.
6. a) Write about various data structures required for the database recovery using ARIES algorithm. [7M]  
b) Discuss the impact of locking on performance of transactions. [7M]
7. a) Explain the Extensible Hashing technique. [4M]  
b) Construct a B+ tree of order 4 to insert elements 1, 3, 5, 7, 9, 2, 4, 6, 8, and 10 in the given order. Also show the tree after deletion of elements 9, 7, and 8 in the same order. [10M]

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