SEAT No. :

[6006]-47

F.Y. M.C.A. (Engineering)

DATA BASE MANAGEMENT SYSTEM

(310912) (2020 Pattern) (Semester - II)

Time : 2½ Hours]   *[Max. Marks : 70*

Instructions to the candidates:

 1) Neat diagrams must be drawn wherever necessary.

 2) Figures to the right side indicate full marks.

 3) Assume Suitable data if necessary.

Q1) a) Explain components of DBMS along with its Architecture.   [8]

 b) Explain database Schema with example.   [4]

OR

Q2) a) Write difference between DBMS and File Processing System.   [6]

 b) Explain different layers of data abstraction.   [6]

Q3) a) Explain all DDL commands with example.   [6]

 b) A bank has many branches, the bank has many customers. A customer can open many different kinds of accounts with the bank. Any customer of the bank can take a loan from the bank. All branches can give loans. Bank has also installed automatic teller machines, from which a customer can withdraw from his/her bank. Draw an ER diagram for the bank.   [6]

OR

Q4) a) Explain all types of constraints with suitable example.   [6]

 b) The company is organized into departments. Each department has a unique name and number and a particular employee who manages the department. A department may have several locations. A department controls a no. of projects, each of which has a unique name and number, single location. One employee can work in only one department at one time. One employee will manage one department. One employee can work on more than one project. Design an ER Diagram.   [6]

Q5) a) Normalize following relation up to 3NF with proper explanation {Order No, Order Date, Item No, Item Name, Quantity, Unit Price, Total, Clerk No, Clerk Name}. [6]

b) What is the need of normalization? Explain 2NF in detail. [5]

OR

Q6) a) Explain different Anomalies and data redundancy issues with normalized data. [6]

b) State and explain. BCNF with an example STP. [5]

Q7) a) Explain the concept of conflict and view serializability with proper example. [6]

b) Explain the need of concurrency control in transaction management. [5]

OR

Q8) a) Explain two types of Log based protocol. [8]

b) Explain Lock compatibility matrix. [3]

Q9) a) Explain DBMS system architecture. [6]

b) What are the advantages and disadvantages of Distributed Database System? [6]

OR

Q10) a) Explain 2 - tier and 3 - tier architecture of databases. [8]

b) Differentiate between client - server and centralized architecture. [4]

Q11) a) Explain how to deal with massive datasets using Map Reduce and Hadoop. [6]

b) Explain working of different nodes in HDFS. [6]

OR

Q12) a) Explain CRUD operation in Mango DB. [6]

b) Explain the concept of Indexing in Mango DB. [6]

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