

MCA/M-15

10313**DATA STRUCTURES**

Paper-CS-DE-13

Time Allowed : 3 Hours]

[Maximum Marks : 80

Note : Attempt **five** questions in all, selecting at least **one** question from each Unit. Question No. 1 is compulsory. All questions carry equal marks.

Compulsory Question

1. (a) What is the purpose of finding of Complexity of an algorithm?
- (b) Briefly explain how strings can be stored in computer memory.
- (c) Write an algorithm for traversing a linked list.
- (d) What is a Stack? What is purpose of using it?
- (e) Find the complexity of quicksort in worst case.
- (f) provide an example of building a max-heap.
- (g) Create an adjacency matrix by considering a directed graph of your own choice.
- (h) Explain Bubble sort with an exmple. $8 \times 2 = 16$

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UNIT-I

2. (a) Explain the limitation of Manual Data Processing. 8
- (b) What is the role of a Database Administrator? 4
- (c) Explain : Data Manager, File Manager. 4
3. (a) Explain the three level Architecture of DBMS in detail. 12
- (b) Describe the following concepts :
 - (i) DBMS functions
 - (ii) Component modules. 4

UNIT-II

4. (a) What is a Key? Explain the following :
 - (i) Primary key
 - (ii) Secondary key
 - (iii) Composite key. 6
- (b) Explain the process of Mapping. 4
- (c) Explain the term : Data Model and its types. 6
5. (a) How is RDBMS related to Entity-relationship diagram? Explain. 8

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- (b) Explain with diagrams :

- (i) Inventory Control System
- (ii) Payroll Management System. 8

UNIT-III

6. (a) Explain the term Relational Algebra. How it differs from Algebra? 5
- (b) Explain some query processing by taking a suitable Query Processing Language. 5
- (c) What are Special relational operations. 6
7. (a) Give a detailed description of :
 - (i) DDL Command
 - (ii) DML Command
 - (iii) DCL Command. 11
- (b) What do you mean by View in SQL? Explain. 5

UNIT-IV

8. (a) What do you mean by MS-Access? What are the various parts of an MS-Access Window? 8
- (b) How a new Database is being created in the MS-Access? Explain. 8

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9. (a) Explain the process of creating a Database through Table wizard. 8
- (b) Explain relationship in context to MS-Access DBMS. 4
- (c) What are the importance of Tables in MS-Access? 4