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PG2S-147-B-22
M.Sc. II Semester Degree Examination
COMPUTER SCIENCE
Data Structures Using C++
Paper : HCT 2.1

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

1. *Section A is Compulsory.*
2. *Answer any Five questions from Section B.*

SECTION - A

Answer the following questions:

(10×2=20)

1.
 - a) Write any two objectives of studying data structures.
 - b) Write any two properties of arrays.
 - c) What is binary search?
 - d) List the basic operations carried out in a linked list.
 - e) State any two difference between arrays and linked list.
 - f) List out the disadvantages of using a linked list.
 - g) Define stack.
 - h) List out the difference between recursion and iteration.
 - i) Write any two properties of binary tree.
 - j) Define a Graph.

SECTION - B

Answer any Five of the following:

(5×12=60)

2.
 - a) Briefly discuss the classification of data structures (6)
 - b) Briefly explain different ways of initializing arrays. (6)
3.
 - a) What is searching? Explain Linear Search. (6)
 - b) What is Sorting? Explain bubble sort with suitable example. (6)

4. a) Define Linked list ? Explain creation of Singly Linked List with neat diagram. (6)
b) Explain the insertion operation in single linked list. (6)
5. a) What is Circular linked list? Explain how it differs from singly linked list. (6)
b) Write any six applications of linked list. (6)
6. a) Explain Primitive Operations Performed on stack. (6)
b) What is recursion? Explain with suitable example. (6)
7. a) Briefly discuss the binary tree traversal. (6)
b) With a neat diagram, explain Breadth First Search (BFS) algorithm. (6)
8. Write short notes on any **Two** of the following. (2×6=12)
- a) Merge sort
 - b) Double Linked List
 - c) Queues
 - d) AVL Trees
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PG2S-148-B-22
M.Sc. II Semester Degree Examination
COMPUTER SCIENCE
Relational Database Management System
Paper : HCT - 2.2
(New Syllabus)

Time : 3 Hours

Maximum Marks : 80

Instructions To Candidates :

1. *Section A is Compulsory.*
2. *Answer any Five questions from Section B.*

SECTION-A

Answer the following questions.

(10×2=20)

1.
 - a) Who is a DBA? What are the responsibilities of a DBA?
 - b) What is a data model? List the types of data models used.
 - c) Define Entity. Differentiate between Strong and Weak Entity Sets.
 - d) With an example explain referential integrity.
 - e) List out SQL Data types.
 - f) List the string operations supported by SQL.
 - g) What are the three kinds of intent locks?
 - h) What is shadow copy scheme?
 - i) What are the two types of errors?
 - j) What are purposes of ROLLBACK and SAVEPOINT statements in PL/SQL?

SECTION-B

2.
 - a) What are the various components of DBMS? (6)
 - b) Explain the two levels of data independence with neat diagram. (6)
3.
 - a) Define Attribute. Explain different types of attributes. (6)
 - b) What is a partial key? How it is represented in ER diagram. Give an example. (6)

4. a) Explain different symbols that are used in ER diagrams with an example. (6)
b) Explain foreign key constraints in SQL with an example. (6)
5. a) Explain different types of joins. (6)
b) Explain different Relational set operators. (6)
6. a) Explain Database Recovery and Security. (6)
b) What is a lock? Explain the types of locks. (6)
7. a) Explain Client Server Architecture. (6)
b) Explain DDL commands in SQL. (6)
8. Write notes on **any two** of the following: (2×6=12)
a) 3-Schema architecture.
b) SQL Arithmetic operators
c) Data anomalies
d) Distributed database systems.
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