

**Faculty of Science**  
**B.Sc (Computer Science) II-Year, CBCS –III Semester**  
**Backlog Examinations –June/July, 2022**

**PAPER: Data Structures**

Time: 3 Hours

Max Marks: 80

**Section-A**

- I. Answer any *eight* of the following questions (8x4=32 Marks)
1. What is an Array? Describe the initialization of an Array.
  2. What are the pros and cons of Arrays?
  3. Discuss the different String Manipulation Functions.
  4. Differentiate Iteration and Recursion.
  5. What are the applications of Linked List?
  6. Give a brief note on Garbage Collection.
  7. What is Binary Search Tree? Explain briefly.
  8. Write a short note on Hash Functions.
  9. Describe Spanning Tree.
  10. What is searching? Explain Sequential Search with an example.
  11. Discuss the procedure to create a Heap Tree.
  12. Explain Selection Sort with an example.

**Section-B**

- II. Answer the following questions (4x12=48 Marks)
- 13.(a) Explain the process of Evaluating the Postfix Expression with an example program.  
(OR)  
(b) Write a program to implement Stack Operations using Arrays.
  - 14.(a) Discuss the Operations of Queue ADT with an example program.  
(OR)  
(b) What are the advantages and disadvantages of Linked List? Explain elaborately.
  - 15.(a) Demonstrate the Graph Traversal Techniques DFS and BFS with suitable examples.  
(OR)  
(b) Illustrate and explain the Collision Resolution Strategies.
  - 16.(a) Discuss the steps to sort the elements of an array using Quick sort with an example.  
(OR)  
(b) Discuss Binary Search Technique with an example program.

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## B.Sc (Computer Science) II-Year, CBCS-III Semester

## Backlog Examinations –June/July, 2022

## PAPER: Database Management Systems

Time: 3 Hours

Max Marks: 80

## Section-A

- I. Answer any *five* of the following questions (5x4=20 Marks)
1. Define a Transaction. And write its properties.
  2. Specify different Database Users.
  3. Specify the Symbols used in ER Diagram.
  4. Define Functional Dependency.
  5. Name Different Network Types.
  6. Write the Basic Structure of SQL Query.
  7. What are Views? How to create them.
  8. Define a Trigger.

## Section-B

- II. Answer the following (4x15=60 Marks)
9. (a) Define Database. Describe the Purpose and Applications of Database System.  
(OR)  
(b) What are different Relational Query Languages? Mention any five Relational operations.
10. (a) What are ER Diagrams? How to reduce ER diagrams into Relational Schemas.  
(OR)  
(b) Describe the Features of Good Relational Designs.
11. (a) Describe Client-Server Architecture in detail.  
(OR)  
(b) Describe Aggregate Functions in SQL with example Queries.
12. (a) Describe various SQL Data Types and Schemas.  
(OR)  
(b) What are Functions? How to Create a Function in SQL? Explain with an example.