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(FOR THE CANDIDATES ADMITTED DURING THE ACADEMIC YEAR 2022 ONLY)

22UCS205

REG.NO

NGM COLLEGE (AUTONOMOUS) POLLACHI

END-OF-SEMESTER EXAMINATIONS: MAY- 2023

B. Sc-COMPUTER SCIENCE (Aided & SF) **MAXIMUM MARKS: 50**

II SEMESTER **TIME: 3 HOURS**

PART - III

DATA AND FILE STRUCTURES

SECTION – A (10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS. (K1)

1. Which of the following is a step by step instructions to perform particular task?
   a. algorithm b. definiteness c. finiteness d. data structure

2. A linear collection of data elements where the linear node is given by means of pointer is called?
   a. Node List b. Linked List
   c. Singly Linked List d. Doubly Linked List

3. What is a full binary tree?
   a. Each node has exactly zero or two children
   b. Each node has exactly two children
   c. All the leaves are at the same level
   d. Each node has exactly one or two children

4. What is an eternal sorting algorithm?
   a. Algorithm that uses tape or disk during the sort
   b. Algorithm that involves swapping
   c. Algorithm that uses main memory during the sort
   d. Algorithm that are considered in peace

5. A unit of storage that can store one or more records in a hash file organization is denoted as _____
   a. Buckets b. Disk Pages c. Blocks d. Nodes

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES (K2)

6. Mention the three distinct aspects of the verification of creating program.
7. List the use of Garbage Collection and Compaction in linked list.
8. Define Undirected Graph.
9. Define Hash Table
10. Mention the use of cellular partition in file organization.

ETHICAL PAPER

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SECTION – B (5 X 3 = 15 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.

(K3)

11. a) Write short notes on Arrays and two types operations.

(OR)

b) List and explain the Five Function of Stack.

12. a) Write a procedure to insert an element into the singly linked list.

(OR)

b) Write short notes on sparse matrices.

13. a) List and explain basic terminology of the binary tree.

(OR)

b) List and explain types of graphs with suitable diagram.

14. a) Explain binary search with example.

(OR)

b) Discuss Heap Sort with examples.

15. a) Mention and define the four types of query used in file structure.

(OR)

b) Write notes on hashed indexes.

SECTION – C (5 X 5 = 25 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.

(K4 (Or) K5)

16. a) Explain Ordered List in data structure with examples.

(OR)

b) Illustrate the procedure for ADD and DELETE items into the QUEUE with example.

17. a) How are Polynomial Additions performed with Singly Linked List. Explain with example.

(OR)

b) Summarize how insert and delete operations are performed by doubly linked list.

18. a) What are the three ways of traversing a binary tree? Describe with example.

(OR)

b) Explain Adjacency Matrix in graph.

19. a) Outline the Analysis of Insertion Sort with examples.

(OR)

b) Explain 2-way merge sort with example.

20. a) Explain Tree Indexing – B Trees in Data Structure.

(OR)

b) Illustrate Inverted Files in File organization.