(NO. OF PAGES: 2)

(FOR THE CANDIDATES ADMITTED **22UAI205**

DURING THE ACADEMIC YEAR 2022 onwards ONLY) **REG.NO. :**

N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI

END-OF-SEMESTER EXAMINATIONS : May 2023

B.Sc. – COMPUTER SCIENCE WITH

ARTIFICIAL INTELLIGENCE **MAX: 50**

II SEMESTER **TIME : 3 HOURS**

PART - III
DATA STRUCTURES AND ALGORITHMS

SECTION – A (10 X 1 = 10 MARKS)
ANSWER THE FOLLOWING QUESTIONS.

1.Which one is consisting of collection of elements?

a) Data Structures b) Data Base c) Array d) Computer

2. ---------- data structure allows deleting data elements from front and inserting at rear

a)Stacks b) Queue c) Deques d) Binary Search Tree

3. To represent hierarchical relationship between elements ---------- data structure is used

a) Tree b) Stacks c) deques d) priority

4.The selected keys in the quick sort method is called as ----------

a) Outer Key b) Inner Key c) Partition key d)Pivot key

5. For Analyzing an algorithm ---------- is a better computing time

a) O(100 Log N) b) O(N) c) O(N2) d) O(N Log N)

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

6. Define Arrays.

7. What is meant by stack?

8. Give the purpose of Binary Tree

9. What is meant by Merge Sort?

10. What does omega notation mean?

(CONTD …. 2)

SECTION – B (5 X 3 = 15 MARKS)

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

(K3)

11. a) Demonstrate purpose of data Structure

(OR)

b) Describe operations on arrays

12. a) List the Queue Operations in brief

(OR)

b) Sketch Circular List

13. a) List the types of trees in data structures

(OR)

b) Write a short note on applications of graph

14. a) Define Bubble sort with an example

(OR)

b) Examine divide and conquer method

15. a) Describe the concepts of Space complexity in data structures

(OR)

b) Show how searching for patterns is done in data structures

SECTION – C (5 X 5 = 25 MARKS)

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

(K4 (Or) K5)

16. a) Describe the major role of Data Structure's in Application

(OR)

b) Explain Abstract Data Types

17. a) Elaborate Stack with Operations

(OR)

b) Explain polynomial addition with example.

18. a) Analyse the Binary Search Tree implementation

(OR)

b) Analyse the Travelling salesman problem **with suitable algorithm.**

19. a) Explain heap sort with an example

(OR)

b) Examine Direct Address method and discuss its advantages.

20. a) Explain the importance of time complexity in data structures

(OR)

b)Analyze how a new sorting algorithm invented in data structures

****