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(FOR THE CANDIDATES ADMITTED **21UIT205**

DURING THE ACADEMIC YEAR 2021 ONLY) **REG.NO. :**

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

END-OF-SEMESTER EXAMINATIONS: JULY 2022

B.Sc.IT **MAXIMUM MARKS: 70**

II SEMESTER **TIME : 3 HOURS**

PART - III

DATA STRUCTURES

SECTION - A (10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS.

MULTIPLE CHOICE QUESTIONS. (K1)

1. A linear collection of data elements where the linear node is given by means of pointer is called _____.
   a. Linked list b. Node List c. Primitive List d. None of these
2. Process of inserting an element in stack is called _____.
   a. Create b. Pop c. Evaluation d. Push
3. A queue is a _____.
   a. FIFO b. LIFO c. Ordered Array d. Linear tree
4. Which type of traversal of binary search tree outputs the value in sorted order?
   a. Pre-order b. Post-order c. In-order d. None of the above
5. The time complexity of heap sort in worst case is _____.
   a. O(logn) b. O(n) c. O(nlogn) d. O(n^2)

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

6. Define Array.
7. What is stack?
8. What is Queue?
9. List out the traversal in trees.
10. What do you mean by hashing in data structure?

SECTION – B (5 X 4 = 20 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS. (K3)

11. a) Write a short note on single dimensional arrays.

(OR)

b) Briefly explain dynamic memory allocation.

12. a) How to represent stack through arrays?

(OR)

b) Discuss briefly the Stacks and Recursion.

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13. a) How to represent Queue?

(OR)

b) List the applications of Queues.

14. a) What is binary tree? Explain.

(OR)

b) Write a short note on binary search.

15. a) Briefly explain spanning trees.

(OR)

b) Discuss shell sort Algorithms with example.

SECTION - C **(4 X 10 = 40 MARKS)**

ANSWER ANY FOUR OUT OF SIX QUESTIONS. (K4 (Or) K5)
(16thQUESTION IS COMPULSORY AND ANSWER ANY THREE QUESTIONS (FROM Qn. No: 17 to 21)

16. Explain in detail the types of trees.

17. Discuss in detail the operations in Linked list.

18. Elaborate the representation of stack through linked list.

19. Elucidate Dequeue with example.

20. Describe in detail the tree traversal.

21. Discuss in detail any 3 sorting algorithms.

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