(FOR THE CANDIDATES ADMITTED

DURING THE ACADEMIC YEAR 2021 ONLY)

21UBC205

REG.NO.

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

END-OF-SEMESTER EXAMINATIONS: JULY 2022

B.CA   **MAXIMUM MARKS: 70**

SEMESTER: II   **TIME: 3 HOURS**

PART - III

DATA STRUCTURES

SECTION - A   **(10 X 1 = 10 MARKS)**

ANSWER THE FOLLOWING QUESTIONS.
MULTIPLE CHOICE QUESTIONS.   **(K1)**

1. Which of the following data structure cannot store the non-homogeneous data elements?

    a) Arrays   b) Records   c) Pointers   d) Stacks

2. The term push and pop is related to _____.

    a) Array   b) Lists   c) Stacks   d) Trees

3. Which of the following is non-liner data structure?

    a) Stacks   b) List   c) Strings   d) Trees

4. Minimum number of fields in each node of a doubly linked list is _____.

    a) 2   b) 3   c) 4   d) None of the above

5. Quick sort is also known as _____.

    a) merge sort   b) tree sort   c) shell sort   d) partition and exchange sort

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES   **(K2)**
(Qn. No. 6 - 10)

6. Define Queue in Data structures.

7. Comment on Binary search tree.

8. What is a minimum spanning tree?

9. What is meant by Backtracking method?

10. What are the searching techniques?

SECTION – B   **(5 X 4 = 20 MARKS)**

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.
(Qn. No. 11 to 15)10 questions (a & b) – 2 questions from each unit.   **(K3)**

11. a) Define Linear data structures and its various types.

                 (OR)

    b) What are the main features of Linked list?

12. a) What is meant by Binary tree? Explain.

                 (OR)

    b) What are the operations of Threaded binary tree?

13. a) What is an Adjacency matrix? Explain.
   (OR)
   b) Write about the Kruskal's algorithm in detail.

14. a) Which basic steps are permitted on Greedy methods?
   (OR)
   b) What is the use of Divide and Conquer algorithms?

15. a) Discuss the Merge sort algorithm in details.
   (OR)
   b) List the searching techniques in details.

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

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

16. Discuss the Stack and Queue data structures with example.

17. List and explain the different tree traversals in detail.

18. Explain the Dijkstra algorithm in detail.

19. Discuss the Traveling salesman problem in detail.

20. Explain the 8 Queen's problem and its Operations.

21. Elucidate the steps in Quick sort algorithm with example.

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