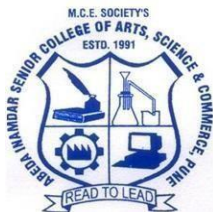


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AZAM CAMPUS, CAMP, PUNE – 411001**



Booklet of Practical Skeleton Papers for

B.C.A (Science) NEP-2023 Pattern

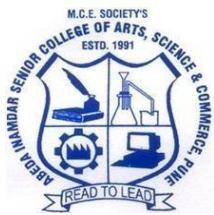
Credit System Syllabus

(w.e.f. From - June 2023)

S.Y.B.C.A (Science)

SEMESTER–IV

23SBCA44MM-Lab I: Data Structure using Python



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(Semester-IV, NEP-2023 pattern)

Duration: 3hrs

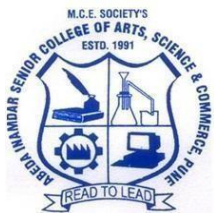
Max Marks: 30

Q1. Write Python program to search element in an array using linear search algorithm in iterative manner. [10]

Q2. Write Python program to implement following operations on singly circular linked list. [15]

1. Append
2. Display
3. Insert First

Q3. External Viva [5]



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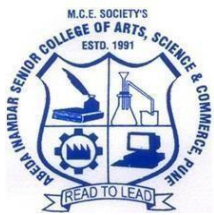
Max Marks: 30

Q1. Write recursive python program to search element in an array using linear search algorithm. [10]

Q2. Write Python program to implement following operations on Doubly Circular linked list. [15]

- 1. Append**
- 2. Display**
- 3. Delete Last**

Q3. External Viva [5]



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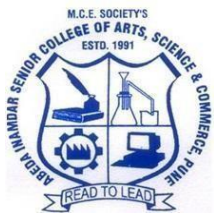
Max Marks: 30

Q1. Write Python program to search element in an array using binary search algorithm in iterative manner. [10]

Q2. Write Python program to implement following operations on singly linked list. [15]

1. Append
2. Display
3. Insert at position

Q3. External Viva [5]



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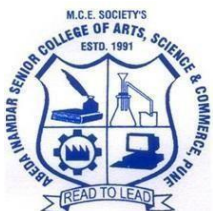
Max Marks: 30

Q1. Write recursive python program to search element in an array using binary search algorithm. [10]

Q2. Write Python program to implement following operations on doubly linked list. [15]

1. Append
2. Display
3. Insert at position

Q3. External Viva [5]



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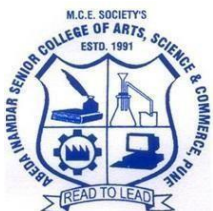
Max Marks: 30

Q1. Write Python program to sort elements in ascending order using bubble sort. [10]

Q2. Write python program to implement static stack with following operations [15]

1. PUSH
2. POP
3. DISPLAY

Q3. External Viva [5]



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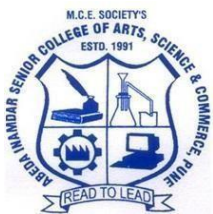
Max Marks: 30

Q1. Write Python program to sort elements in descending order using bubble sort. [10]

Q2. Write python program to implement static queue with following operations [15]

1. ENQUEUE
2. DEQUEUE
3. DISPLAY

Q3. External Viva [5]



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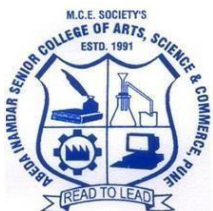
Q1. Write Python program to sort numbers in ascending order using insertion sort [10]

Q2. Write Python program to implement dynamic stack using linked list to implement following operations: [15]

1. PUSH
2. POP
3. DISPLAY

Q3. External Viva

[5]



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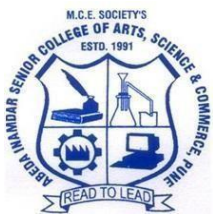
Max Marks: 30

Q1. Write a Python program to sort numbers in descending order using insertion sort. [10]

Q2. Write Python program to implement dynamic queue using linked list and implement following operations: [15]

1. ENQUEUE
2. DEQUEUE
3. DISPLAY

Q3. External Viva [5]



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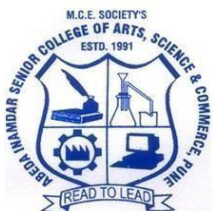
Duration: 3hrs

Max Marks: 30

Q1. Write Python program to create singly linked list and display it. [10]

Q2. Write python program to evaluate postfix expression using stack. [15]

Q3. External Viva [5]



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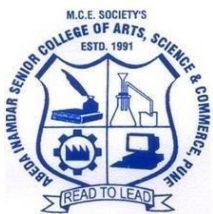
Duration: 3hrs

Max Marks: 30

Q1. Write Python program to create doubly linked list and display it. [10]

Q2. Write python program to sort the elements in ascending order using quick sort. [15]

Q3. External Viva [5]



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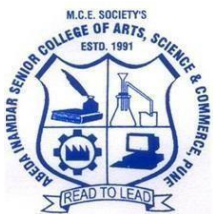
Paper- 23SBCA44MM-Lab I: Data Structure using Python

(Semester-IV, NEP-2023 pattern)

Duration: 3hrs

Max Marks: 30

- Q1. Write Python program to create doubly circular linked list and display it. [10]
- Q2. Write python program to sort the elements in ascending order using merge sort. [15]
- Q3. External Viva [5]



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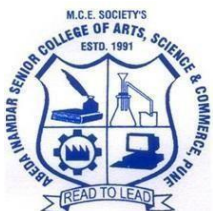
Duration: 3hrs

Max Marks: 30

Q1. Write Python program to reverse sentence using stack [10]

Q2. Write Python program to create binary search tree and display in-order and count number of leaf nodes. [15]

Q3. External Viva [5]



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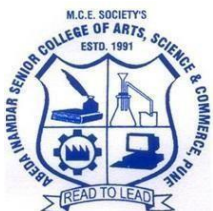
Duration: 3hrs

Max Marks: 30

Q1. Write a Python program to sort numbers in ascending order using bubble sort. [10]

Q2. Write Python program to create binary search tree and display it in in-order and post-order fashion. [15]

Q3. External Viva [5]



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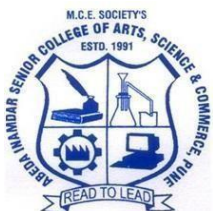
Duration: 3hrs

Max Marks: 30

Q1. Write Python program to search element in an array using linear search algorithm in iterative manner. [10]

Q2. Write Python program to convert expression infix to postfix using stack [15]

Q3. External Viva [5]



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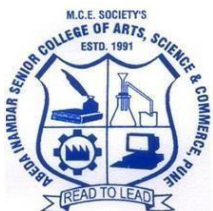
Max Marks: 30

Q1. Write Python program to search element in an array using binary search algorithm in iterative manner. [10]

Q2. Write Python program to implement following operations on doubly linked list [15]

1. Append
2. Display
3. Search element

Q3. External Viva [5]



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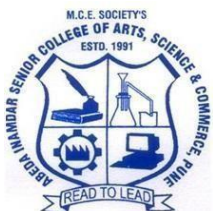
Duration: 3hrs

Max Marks: 30

Q1. Write Python program to search element in an array using linear search algorithm in recursive manner. [10]

Q2. Write Python program to implement following operations on singly linked list [15]
1. Append
2. Display
3. Delete By Value

Q3. External Viva [5]



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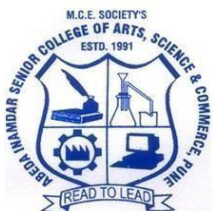
Max Marks: 30

Q1. Write Python program to search element in an array using binary search algorithm in recursive manner. [10]

Q2. Write Python program to implement following operations on singly circular linked list [15]

1. Append
2. Display
3. Delete First

Q3. External Viva [5]



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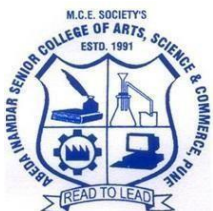
Duration: 3hrs

Max Marks: 30

Q1. Write Python program to reverse sentence using stack . [10]

Q2. Write python program to sort the elements in ascending order using quick sort. [15]

Q3. External Viva [5]



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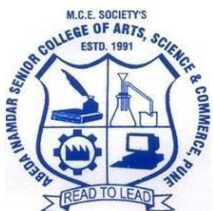
Max Marks: 30

Q1. Write Python program to sort elements of an array in ascending order using insertion sort algorithm. [10]

Q2. Write Python program to implement following operations on doubly circular linked list [15]

1. Append
2. Display
3. Delete by value

Q3. External Viva [5]



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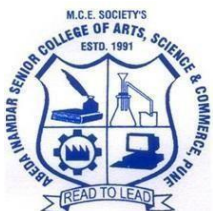
Max Marks: 30

Q1. Write Python program to reverse singly linked list [10]

Q2. Write python program to implement static queue with following operations [15]

1. ENQUEUE
2. DEQUEUE
3. DISPLAY

Q3. External Viva [5]



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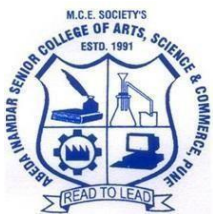
Duration: 3hrs

Max Marks: 30

Q1. Write Python program to reverse doubly linked list and display it. [10]

Q2. Write Python program to create binary search tree and display it in in-order and pre-order fashion. [15]

Q3. External Viva [5]



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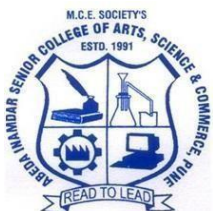
Duration: 3hrs

Max Marks: 30

Q1. Write Python program to reverse sentence using stack [10]

Q2. Write Python program to create binary search tree and display in-order and also find mirror image of BST. [15]

Q3. External Viva [5]



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Duration: 3hrs

Max Marks: 30

Q1. Write Python Program to find length singly linked list.

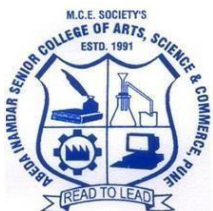
[10]

Q2. Write a Python program to sort elements in ascending order using Merge Sort Algorithm

[15]

Q3. External Viva

[5]



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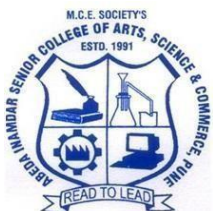
Max Marks: 30

Q1. Write Python program to implement linear search algorithm. [10]

Q2. Write python program to implement static stack with following operations [15]

1. PUSH
2. POP
3. DISPLAY

Q3. External Viva [5]



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Max Marks: 30

Q1. Write Python program to sort elements in ascending order using insertion sort.

[10]

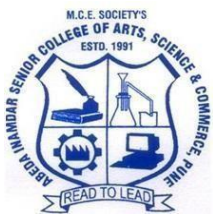
Q2. Write Python program to implement dynamic queue using linked list and implement following operations:

[15]

1. ENQUEUE
2. DEQUEUE
3. DISPLAY

Q3. External Viva

[5]



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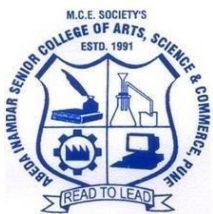
Duration: 3hrs

Max Marks: 30

Q1. Write Python program to find length of static stack. [10]

Q2. Write Python program to implement Binary search tree and display in-order traversal. [15]

Q3. External Viva [5]



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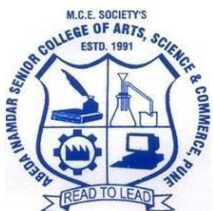
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Q1. Write Python program to find length of static queue. [10]

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Q3. External Viva [5]



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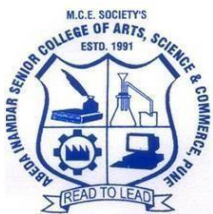
Duration: 3hrs

Max Marks: 30

Q1. Write Python program to display peek elements of static stack. [10]

Q2. Write Python program to implement doubly linked list and display it and also implement search by value in linked list. [15]

Q3. External Viva [5]



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S.Y.B.C.A. (SCIENCE) PRACTICAL EXAMINATION OCT / APRIL 20____

Paper- 23SBCA44MM-Lab I: Data Structure using Python

(Semester-IV, NEP-2023 pattern)

Duration: 3hrs

Max Marks: 30

Q1. Write Python program to display peek elements of static queue. [10]

Q2. Write Python program to implement singly linked list and display it and also implement search by value in linked list. [15]

Q3. External Viva [5]