

SAVITRIBAI PHULE PUNE UNIVERSITY
M.Sc. (Computer Application) Sem-I
Practical Examination (2023 Pattern)
SUBJECT:CA 505 MJP
Lab course based on CA 502 MJ
(Python Programming and Data Structures)

Duration: 3 Hrs.

Max. Marks: 35

Q.1) Write a Python Program to Calculate the Average of Numbers in a List. [10 Marks]

Q.2) Write a python program to perform following operations on BST.

Insert

Display

[20 Marks]

OR

Q.2) Python program to merge two sorted linked lists.

[20 Marks]

Q.3) Viva

[05 Marks]

SAVITRIBAI PHULE PUNE UNIVERSITY
M.Sc. (Computer Application) Sem-I
Practical Examination (2023 Pattern)
SUBJECT:CA 505 MJP
Lab course based on CA 502 MJ
(Python Programming and Data Structures)

Duration: 3 Hrs.

Max. Marks: 35

Q.1) Write a program which accepts 6 integer values and prints “DUPLICATES” if any of the values entered are duplicates otherwise it prints “ALL UNIQUE”.

Example: Let 6 integers are (32, 10, 45, 90, 45, 6) then output “DUPLICATES” to be printed.

[10 Marks]

Q.2) Write a python program to perform following operations on BST.

Create

Search

Display (Preorder / Inorder / Postorder)

[20 Marks]

OR

Q.2) Python program for static implementation of Singly Linked List to perform Insert and Display operations.

[20 Marks]

Q.3) Viva

[05 Marks]

SAVITRIBAI PHULE PUNE UNIVERSITY
M.Sc. (Computer Application) Sem-I
Practical Examination (2023 Pattern)
SUBJECT:CA 505 MJP
Lab course based on CA 502 MJ
(Python Programming and Data Structures)

Duration: 3 Hrs.

Max. Marks: 35

Q.1) Write a Python program to add and remove operation on set. [10 Marks]

Q.2) Write a python program to perform following operations on Binary Search Tree

- i. Create
- ii. Count non-leaf nodes
- iii. Traversal (Prorder / Inorder / Postorder)

[20 Marks]

OR

Q.2) Python program for dynamic implementation of Singly Linked List to perform Insert and Display operations.

[20 Marks]

Q.3) Viva

[05 Marks]

SAVITRIBAI PHULE PUNE UNIVERSITY
M.Sc. (Computer Application) Sem-I
Practical Examination (2023 Pattern)
SUBJECT:CA 505 MJP
Lab course based on CA 502 MJ
(Python Programming and Data Structures)

Duration: 3 Hrs.

Max. Marks: 35

Q.1) Write a Python program to find maximum and the minimum value in a set.

[10 Marks]

Q.2) Write a python program to perform following operations on Binary Search Tree

- i. Create
- ii. Count leaf nodes
- iii. Traversal (Prorder / Inorder / Postorder)

[20 Marks]

OR

Q.2) Python program to create a linked list in the sorted order.

[20 Marks]

Q.3) Viva

[05 Marks]

SAVITRIBAI PHULE PUNE UNIVERSITY
M.Sc. (Computer Application) Sem-I
Practical Examination (2023 Pattern)
SUBJECT:CA 505 MJP
Lab course based on CA 502 MJ
(Python Programming and Data Structures)

Duration: 3 Hrs.

Max. Marks: 35

Q.1) Write a python program to create an array of 'n' integers and display the array elements. Access individual elements through indexes. [10 Marks]

Q.2) Write a python program to perform following operations on BST

i. Create

ii. Delete

iii. Traversal (Prorder / Inorder / Postorder)

[20 Marks]

OR

Q.2) Write a python program for implementation of Doubly Linked List to perform Insert and Display operations.

[20 Marks]

Q.3) Viva

[05 Marks]

SAVITRIBAI PHULE PUNE UNIVERSITY
M.Sc. (Computer Application) Sem-I
Practical Examination (2023 Pattern)
SUBJECT:CA 505 MJP
Lab course based on CA 502 MJ
(Python Programming and Data Structures)

Duration: 3 Hrs.

Max. Marks: 35

Q.1) Write a python program to get the number of occurrences of specified elements in an array.
[10 Marks]

Q.2) Write a python program to perform following operations on Binary Search Tree

- i. Create
- ii. Count total nodes
- iii. Traversal (Prorder / Inorder / Postorder)

[20 Marks]

OR

Q.2) Python program to create doubly linked list and search the given node in the Linked list.

[20 Marks]

Q.3) Viva

[05 Marks]

SAVITRIBAI PHULE PUNE UNIVERSITY
M.Sc. (Computer Application) Sem-I
Practical Examination (2023 Pattern)
SUBJECT:CA 505 MJP
Lab course based on CA 502 MJ
(Python Programming and Data Structures)

Duration: 3 Hrs.

Max. Marks: 35

Q.1) Write a python program to reverse the order of the items in the array. [10 Marks]

Q.2) Write a python program to perform following operations on BST.

i. Create

ii. Display [20 Marks]

OR

Q.2) Python program to create singly linked list and search the given node in the Linked list. [20 Marks]

Q.3) Viva [05 Marks]

SAVITRIBAI PHULE PUNE UNIVERSITY
M.Sc. (Computer Application) Sem-I
Practical Examination (2023 Pattern)
SUBJECT:CA 505 MJP
Lab course based on CA 502 MJ
(Python Programming and Data Structures)

Duration: 3 Hrs.

Max. Marks: 35

Q.1) Write a python program to find sum of all the elements in a list. [10 Marks]

Q.2) Write a python program to perform following operations on BST.

i. Insert

ii. Delete

iii. Display (Preorder / Inorder / Postorder) [20 Marks]

OR

Q.2) Python program to create singly linked list and reverse the Linked list. [20 Marks]

Q.3) Viva [05 Marks]

SAVITRIBAI PHULE PUNE UNIVERSITY
M.Sc. (Computer Application) Sem-I
Practical Examination (2023 Pattern)
SUBJECT:CA 505 MJP
Lab course based on CA 502 MJ
(Python Programming and Data Structures)

Duration: 3 Hrs.

Max. Marks: 35

Q.1) Write a python function to calculate the factorial of a number. The function accept the number as an argument. [10 Marks]

Q.2) Write a program to search an element using Linear Search. [20 Marks]

OR

Q.2) Write a program to calculate indegree of a graph using adjacency matrix. [20 Marks]

Q.3) Viva [05 Marks]

SAVITRIBAI PHULE PUNE UNIVERSITY
M.Sc. (Computer Application) Sem-I
Practical Examination (2023 Pattern)
SUBJECT:CA 505 MJP
Lab course based on CA 502 MJ
(Python Programming and Data Structures)

Duration: 3 Hrs.

Max. Marks: 35

Q.1) Write a Python script to generate and print a dictionary that contains a number (between 1 and n) in the form (x : x*x). [10 Marks]

Q.2) Write a program to search an element using Binary Search. [20 Marks]

OR

Q.2) Write a Python program to calculate outdegree of a graph using adjacency matrix.[20 Marks]

Q.3) Viva [05 Marks]

SAVITRIBAI PHULE PUNE UNIVERSITY
M.Sc. (Computer Application) Sem-I
Practical Examination (2023 Pattern)
SUBJECT:CA 505 MJP
Lab course based on CA 502 MJ
(Python Programming and Data Structures)

Duration: 3 Hrs.

Max. Marks: 35

Q.1) Write a program to generate Fibonacci numbers using function. [10 Marks]

Q.2) Write a Python program to sort given numbers using Bubble Sort algorithms. [20 Marks]

OR

Q.2) Write a Python class named Circle constructed by a radius and two methods which will compute the area and the perimeter of a circle [20 Marks]

Q.3) Viva [05 Marks]

SAVITRIBAI PHULE PUNE UNIVERSITY
M.Sc. (Computer Application) Sem-I
Practical Examination (2023 Pattern)
SUBJECT:CA 505 MJP
Lab course based on CA 502 MJ
(Python Programming and Data Structures)

Duration: 3 Hrs.

Max. Marks: 35

Q.1) Write a Python script to generate and print a dictionary that contains a number (Between 1 and n) in the form (x, x*x).

Sample Dictionary (n = 5)

Expected Output: {1: 1, 2: 4, 3: 9, 4: 16, 5: 25}.

[10 Marks]

Q.2) Write a Python program to implement sorting Merge Sort algorithms.

[20 Marks]

OR

Q.2) Write a Python program to create a class representing a shopping cart. Include methods for adding and removing items, and calculating the total price.

[20 Marks]

Q.3) Viva

[05 Marks]

SAVITRIBAI PHULE PUNE UNIVERSITY
M.Sc. (Computer Application) Sem-I
Practical Examination (2023 Pattern)
SUBJECT:CA 505 MJP
Lab course based on CA 502 MJ
(Python Programming and Data Structures)

Duration: 3 Hrs.

Max. Marks: 35

Q.1) Write a Python script to sort (ascending and descending) a dictionary by value. [10 Marks]

Q.2) Write a Python program to search an element in an integer array using Binary Search.
[20 Marks]

OR

Q.2) Write a Python program to implement sorting Quick Sort algorithms. [20 Marks]

Q.3) Viva [05 Marks]

SAVITRIBAI PHULE PUNE UNIVERSITY
M.Sc. (Computer Application) Sem-I
Practical Examination (2023 Pattern)
SUBJECT:CA 505 MJP
Lab course based on CA 502 MJ
(Python Programming and Data Structures)

Duration: 3 Hrs.

Max. Marks: 35

Q.1) Write a Python script to generate and print a dictionary that contains a number (between 1 and n) in the form (x : x*x). [10 Marks]

Q.2) Write a Python program to implement sorting Insertion Sort algorithms. [20 Marks]

OR

Q.2) Write a program to calculate indegree of a graph. [20 Marks]

Q.3) Viva [05 Marks]

SAVITRIBAI PHULE PUNE UNIVERSITY
M.Sc. (Computer Application) Sem-I
Practical Examination (2023 Pattern)
SUBJECT:CA 505 MJP
Lab course based on CA 502 MJ
(Python Programming and Data Structures)

Duration: 3 Hrs.

Max. Marks: 35

Q.1) Write a Python program to combine two dictionary adding values for common keys.

Sample Dictionary:

d1={'a':100,'b':200,'c':300}

d2={'a':300,'b':200,'d':400}

Sample output: Counter ({'a': 400, 'b': 400, 'd': 400, 'c': 300})

[10 Marks]

Q.2) Write a program to calculate outdegree of a graph.

[20 Marks]

OR

Q.2) Write a Python class named rectangle constructed by a radius and two methods which will compute the area and the perimeter of a circle.

[20 Marks]

Q.3) Viva

[05 Marks]

SAVITRIBAI PHULE PUNE UNIVERSITY
M.Sc. (Computer Application) Sem-I
Practical Examination (2023 Pattern)
SUBJECT:CA 505 MJP
Lab course based on CA 502 MJ
(Python Programming and Data Structures)

Duration: 3 Hrs.

Max. Marks: 35

Q.1) Write a Python program to create a list of tuples with the first element as the number and second element as the square of the number, also display original list in reverse. [10 marks]

Q.2) Write a python code for static implementation of stack. [20 marks]

OR

Q.2) Write a Python program for Evaluation of postfix expression. [20 marks]

Q.3) Viva [05 Marks]

SAVITRIBAI PHULE PUNE UNIVERSITY
M.Sc. (Computer Application) Sem-I
Practical Examination (2023 Pattern)
SUBJECT:CA 505 MJP
Lab course based on CA 502 MJ
(Python Programming and Data Structures)

Duration: 3 Hrs.

Max. Marks: 35

Q.1) Write a Python Program to Calculate the Average of Numbers in a Given List. [10 marks]

Q.2) Write a python code for static implementation of queue. [20 marks]

OR

Q.2) Write a python code for dynamic implementation of Stack to perform following operations:
Init, Push, Pop, Isempty, Isfull. [20 marks]

Q.3) Viva [05 Marks]

SAVITRIBAI PHULE PUNE UNIVERSITY
M.Sc. (Computer Application) Sem-I
Practical Examination (2023 Pattern)
SUBJECT:CA 505 MJP
Lab course based on CA 502 MJ
(Python Programming and Data Structures)

Duration: 3 Hrs.

Max. Marks: 35

Q.1) Write a python code to copy element 44 and 55 from the following tuple into a new tuple
tuple1 = (11, 22, 33, 44, 55, 66), also display the same tuple in reverse order. [10 marks]

Q.2) Write a python code for simple implementation of priority queue. [20 marks]

OR

Q.2) Write a Python program to convert infix to postfix conversion using stack. [20 marks]

Q.3) Viva [05 Marks]

SAVITRIBAI PHULE PUNE UNIVERSITY
M.Sc. (Computer Application) Sem-I
Practical Examination (2023 Pattern)
SUBJECT:CA 505 MJP
Lab course based on CA 502 MJ
(Python Programming and Data Structures)

Duration: 3 Hrs.

Max. Marks: 35

Q.1) Write a Python program to get the 5th element from front and 5th element from last of a tuple. [10 marks]

Q.2) Write a python code for simple implementation of priority queue. [20 marks]

OR

Q.2) Write a python code for dynamic implementation of Stack to perform following operations: Init, Push, Pop, Isempty, Isfull. [20 marks]

Q.3) Viva [05 Marks]

SAVITRIBAI PHULE PUNE UNIVERSITY
M.Sc. (Computer Application) Sem-I
Practical Examination (2023 Pattern)
SUBJECT:CA 505 MJP
Lab course based on CA 502 MJ
(Python Programming and Data Structures)

Duration: 3 Hrs.

Max. Marks: 35

Q.1) Write a program to display following pattern.

[10 marks]

```
1
2 3
4 5 6
7 8 9 10
```

Q.2) Write a code for static stack implementation in python.

[20 marks]

OR

Q.2) Write a python code for dynamic implementation of linear Queue to perform following operations: init, enqueue, dequeue, isEmpty, isFull.

[20 marks]

Q.3) Viva

[05 Marks]

SAVITRIBAI PHULE PUNE UNIVERSITY
M.Sc. (Computer Application) Sem-I
Practical Examination (2023 Pattern)
SUBJECT:CA 505 MJP
Lab course based on CA 502 MJ
(Python Programming and Data Structures)

Duration: 3 Hrs.

Max. Marks: 35

Q.1) Write a python program which accepts 6 integer values and prints “DUPLICATES” if any of the values entered are duplicates otherwise it prints “ALL UNIQUE”. Example: Let 5 integers are (32, 10, 45, 90, 45, 6) then output “DUPLICATES” to be printed. [10 marks]

Q.2) Show the static implementation of queue using Python. [20 marks]

OR

Q.2) Write a python code for Implementation of an algorithm that reverses string of characters using stack and checks whether a string is a palindrome or not. [20 marks]

Q.3) Viva [05 Marks]

SAVITRIBAI PHULE PUNE UNIVERSITY
M.Sc. (Computer Application) Sem-I
Practical Examination (2023 Pattern)
SUBJECT:CA 505 MJP
Lab course based on CA 502 MJ
(Python Programming and Data Structures)

Duration: 3 Hrs.

Max. Marks: 35

Q. 1) Write a Python program to find repeated items in a tuple. [10 marks]

Q. 2) Show the static implementation of stack using python. [20 marks]

OR

Q. 2) Write a python code for implementation of circular queue. [20 marks]

Q.3) Viva [05 Marks]

SAVITRIBAI PHULE PUNE UNIVERSITY
M.Sc. (Computer Application) Sem-I
Practical Examination (2023 Pattern)
SUBJECT:CA 505 MJP
Lab course based on CA 502 MJ
(Python Programming and Data Structures)

Duration: 3 Hrs.

Max. Marks: 35

Q.1) Write a Python Program to Calculate the Average of Numbers in a Given List. [10 marks]

Q.2) Write the code for static queue implementation in Python. [20 marks]

OR

Q.2) Write a python code for Implementation of an algorithm that reverses string of characters using stack and checks whether a string is a palindrome or not. [20 marks]

Q.3) Viva [05 Marks]

SAVITRIBAI PHULE PUNE UNIVERSITY
M.Sc. (Computer Application) Sem-I
Practical Examination (2023 Pattern)
SUBJECT:CA 505 MJP
Lab course based on CA 502 MJ
(Python Programming and Data Structures)

Duration: 3 Hrs.

Max. Marks: 35

Q.1) Write a Python Program to Calculate the Sum of Numbers in a List. [10 Marks]

Q.2) Write a program to search an element using Binary Search. [20 Marks]

OR

Q.2) Write a Python program to calculate outdegree of a graph using adjacency matrix. [20 Marks]

Q.3) Viva [05 Marks]

SAVITRIBAI PHULE PUNE UNIVERSITY
M.Sc. (Computer Application) Sem-I
Practical Examination (2023 Pattern)
SUBJECT:CA 505 MJP
Lab course based on CA 502 MJ
(Python Programming and Data Structures)

Duration: 3 Hrs.

Max. Marks: 35

Q.1) Write a python program to get the number of occurrences of specified elements in an array. [10 Marks]

Q.2) Write a Python program to sort given numbers using Bubble Sort algorithms. [20 Marks]

OR

Q.2) Write a Python class named Circle constructed by a radius and two methods which will compute the area and the perimeter of a circle [20 Marks]

Q.3) Viva [05 Marks]