22395

Instructions –   (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1.   **Attempt any FIVE of the following :**   **10**

   a) List the four features of python.

   b) Differentiate between tuple and list.

   c) Write a syntax to renaming module.

   d) Define constructor in class.

   e) Define Linear and Non Linear data structure.

   f) Define graph and its types.

   g) Define the terms :

   i)   Linked List

   ii) Queue

Marks

2. Attempt any THREE of the following :   **12**

  a) Explain Binary search Tree.

  b) Develop a python program for Bubble sort.

  c) Write a program to print following

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

  d) Describe four operations on tuple data.

3. Attempt any THREE of the following :   **12**

  a) Write output for the following if variable

       S = "Python programming"

       >>> S [5:10]

       >>> S [4:12:3]

       >>> S [-1:-5]

       >>> S [:5]

  b) Explain binary trees with suitable example.

  c) Write a python program to print sum of digit of given number (take number from user)

  d) Define array and explain its types with example.

4. Attempt any THREE of the following :   **12**

  a) Describe doubly linked list in data structure with example.

  b) Explain four tree terminology with example.

  c) Explain any four methods in Numpy Packages.

  d) Explain single inheritance in python with example.

  e) Describe set operation in python with example.

5.   **Attempt any TWO of the following :**   **12**

a) Develop python program for insertion sort.

b) Write a python program to create class rectangle with data members length and breath. Create suitable methods for reading and printing the area and perimeter of rectangle.

c) Explain preorder, postorder and inorder tree traversing with example.

6.   **Attempt any TWO of the following :**   **12**

a) Develop a python program to create linked list with 3 nodes.

b) Write a python program to demonstrate the use of built in mathematics functions.

c) Write a program to find the following in the list.

S = [4, 8, −10, −6, 15, 25, 200]

i) Smallest number in the list

ii) Largest number in the list.

iii) Sum of all elements in the list.

iv) Total number of elements in the list.

v) Sort the given list

vi) Reverse the list.

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