

313306

25226

3 Hours / 70 Marks

Seat No.

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- 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) 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) State the use of walrus operator (`:=`) with example.
 - b) Compare Global and local variables (Any two pts)
 - c) Define –
 - i) Stack
 - ii) Queue
 - d) Define –
 - i) Trees
 - ii) Spanning tree
 - e) Define any two terminologies of tree.
 - f) Define –
 - i) Data abstraction
 - ii) Data encapsulation
 - g) Write any two basic tuple operations in python.

P.T.O.

- 2. Attempt any THREE of the following : 12**
- a) Explain loop control statements in python with example.
(Any two)
 - b) Write a python program to create singly linked list and append one at in it.
 - c) Differentiate method overloading and overriding.
 - d) Describe four built-in functions in python with suitable ex.
- 3. Attempt any THREE of the following : 12**
- a) Enlist and explain any two features of python.
 - b) Implement python program for bubble sort.
 - c) Construct binary search tree for the following sequence
50, 70, 60, 20, 90, 10, 40, 100, 30
 - d) Develop a python program for single inheritance.
- 4. Attempt any THREE of the following : 12**
- a) Differentiate –
 - i) Binary search vs. Linear search
 - ii) List vs. Array
 - b) Explain membership and identity operator.
 - c) Write output of the following code

```
T = ("spam", "Spam", "SPAM", "SPam")  
print (T[2])  
print (T[-2])  
print (T[2:])  
print (List(T))
```
 - d) Describe any four-built in function of Numpy with suitable example.
 - e) Write a python program to calculate area of rectangle and area of square using method overloading.

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

- a) Explain following terms with example
 - i) List
 - ii) Set
 - iii) Tuple
- b) Write python program to accept values from user in a list and find the largest number and smallest number in the list.
- c) Explain module with respect to following points
 - i) Create module
 - ii) Import module
 - iii) Import object from module

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

- a) Write a python program for implementing module to develop calculator, to perform all arithmetic operations.
- b) Explain following terms with diagram and example.
 - i) Singly linked list
 - ii) Doubly linked list
- c) Apply inorder, preorder, postorder traversal algorithm on following tree.

