

22395

24225

3 Hours / 70 Marks

Seat No. 

--	--	--	--	--	--	--	--

- 
- Instructions* – (1) All Questions are *Compulsory*.  
(2) Answer each next main Question on a new page.  
(3) Illustrate your answer 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) Write a syntax to create tuples in Python.
  - b) State any two basic list operations with suitable example.
  - c) Define the terms –
    - i) Class
    - ii) Object
  - d) Describe the concept of data abstraction in Python.
  - e) Define linear data structure with suitable example.
  - f) Define the terms –
    - i) tree
    - ii) graph
  - g) Describe any two tree terminology with example.

P.T.O.

- 2. Attempt any FOUR of the following:** **12**
- a) State any one looping statements in Python with suitable example.
  - b) Describe any three built-in functions in Python with suitable example.
  - c) Write a program to print fibonacci series in Python.
  - d) Describe array vs list with example. (Any three points)
  - e) Explain tree terminologies in data structure?
- 3. Attempt any FOUR of the following:** **12**
- a) List any three comparison operators in Python with suitable example.
  - b) Describe how to access and delete values in dictionary in Python.
  - c) Write a Python program to create a singly linked list.
  - d) Compare between directed graph and undirected graph. (Any three points)
  - e) Describe data structures in Python.
- 4. Attempt any THREE of the following:** **12**
- a) Compare between set and dictionary.
  - b) Describe module in Python with example.
  - c) Write a Python program for method overloading.
  - d) Explain breadth first search with example.
  - e) Write a Python program for insertion sort.
- 5. Attempt any THREE of the following:** **12**
- a) Write an example for Python operator precedence.
  - b) Write a Python program to find factorial of a number.
  - c) Write a Python program to calculate circumference of a circle and area of a square using method overloading.
  - d) Differentiate between singly linked list and doubly linked list in Python.
  - e) Describe directed graph in data structure with example.

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

a) Write output of the following –

i) `>>> a = [2, 6, 8, 9, 10, 6, 4]`  
`>>> a [2 : 4] = [2, 4, 9, 0]`  
`>>> print (a)`

ii) `>>> b ["Hello", "world"]`  
`>>> b.append ("Python")`  
`>>> print (b)`

iii) `>>> t1 = [2, 6, 8, 9, 10]`  
(a) `>>> print (t1 [3])`  
(b) `>>> print (t1 [-1])`  
(c) `>>> print (t1 [2:])`  
(d) `>>> print (t1 [:])`

b) Write a Python program to demonstrate the use of any six built-in mathematical functions.

c) Write a Python program for implementation of Queue.

---