

## DATASTRUCTURES QUESTION BANK

### UNIT1

1. Write short notes on Iterators.
2. What is Algorithm? What are the characteristics of Algorithms?
3. What is an array? Explain two-dimensional array in detail.
4. Explain Bubble Sort in detail.
5. Write short notes on how to implement lists in python.
6. Explain Sorting. Discuss any one technique in detail.
7. Write short notes on Big O notation.
8. What is Python Set. Explain any five functions of set.
9. Explain Insertion Sort in detail.
10. Arrange these elements using bubble sort 30,10,20,4,80.
11. How Arrays differ from python list.
12. Write short notes on Omega Notation.
13. Write short notes on Theta Notation.
14. Explain Multidimensional array with example
15. Explain Map and its operations.
16. Write short notes on sparse matrix.
17. Explain Bag and its operations.
18. Write a program to implement Insertion sort.

### UNIT2

- 1) Explain Linked lists and its operations.
- 2) Write short notes on stack and its operations.
- 3) Explain Circular linked lists.
- 4) Explain Priority Queues.
- 5) Write short notes on doubly linked list with a neat diagram.
- 6) Write short notes on queues and operations performed on it.
- 7) Explain how to search an element in doubly linked list.
- 8) Convert infix into postfix expressions (a)  $(a+b*c)*d$  (b)  $(a*b)*(c/d)$  (c)  $((a*b*c)/d+f)$ .
- 9) Explain the operation of Circular linked list in detail.

### UNIT3

- 1) Explain In-Order, Preorder and Post Order with example.
- 2) What is Merge Sort? Explain the program of merge sort.
- 3) Explain Heap Sort in detail.
- 4) Write Short notes on Hash functions.
- 5) Write short notes on radix sort with an example.
- 6) Explain Recursive implementation of Fibonacci series.

- 7) Write short notes on separate Chaining.
- 8) Write short notes on properties of binary tree.
- 9) Write a Factorial program to implement recursion.
- 10) Write short notes on Min heap with example.
- 11) Write short notes on Huffman coding with a suitable example.
- 12) Explain properties of Recursion in detail.
- 13) Write a program to implement factorial using recursion.
- 14) State and explain the properties of Tree.
- 15) What is Quick sort? Explain the process with a suitable diagram.
- 16) Write radix sort with example.
- 17) Explain Max heap with an example.
- 18) Write short notes on Rehashing.
- 19) Explain the operations performed in a Binary tree.