

“Please check whether you have got the right question paper.”

- i) Solve any three questions from each section including Q. No1 & Q. No 6
- ii) Figures to the right indicate full marks.

## SECTION-A

- Q.1 Answer any five 10
- i) What is data structure?
  - ii) What is push and pop in stack?
  - iii) Explain one dimensional array with example
  - iv) What is prefix, postfix & infix
  - v) Define linked list.
  - vi) Differentiate between singly linked list, circular linked list & doubly linked list
  - vii) What is priority queue?
  - viii) What is a storage classes.
- Q.2 a) Define ADT and explain with an example. 08  
b) What is a circular Queue? Explain with an example. 07
- Q.3 a) Write an algorithm to convert infix expression to postfix expression. 08  
b) Write syntax of following data structure 07
- 1) Array
  - 2) Function
  - 3) Structure
  - 4) Pointer
- Q.4 a) Explain call by value and call by reference. 08  
b) Write a program in 'C' in an array. 07
- Q.5 Write short notes on (any three) 15
- 1) Stack and Queue
  - 2) Circular Queue
  - 3) Applications of linked lists
  - 4) Pointer

## SECTION-B

- Q.6 Answer any five 10
- i) What is DPS?
  - ii) Explain graphs with example.
  - iii) What is shortest path?
  - iv) Explain in-order, pre-order and post-order.
  - v) What is sorting?
  - vi) What is bubble sort?
  - vii) What is tree explain with example?
  - viii) Explain heap sort
- Q.7 a) What are graph traversal techniques? Explain BFS with an example. 08  
b) Write an algorithm for BFS and DFS. 07
- Q.8 a) Explain asymptotic notation used in algorithm performance measurement 07  
b) Sort the following numbers using merge sort 08  
45,60,70,75,80,85,60,55,50
- Q.9 a) Write an algorithm for Insertion sort. 07  
b) Explain selection sort with an example 08
- Q.10 Write short notes on (any three) 15
- 1) B+ trees
  - b) Heapsort
  - c) Prim's algorithm
  - d) Minimum spanning tree