

Day:	Thursday	S-2018-2598	Time: 02.30 PM TO 05.30 PM
Date:	24/05/2018		Max Marks: 80

N.B.:

- 1) Q. No. 1 and Q. No. 5 are compulsory. Out of remaining questions attempt ANY TWO questions from each section.
- 2) Answers to both the sections should be written in the SEPARATE answer book.
- 3) Draw neat and labeled diagrams WHEREVER necessary,
- 4) Use of scientific CALCULATOR is allowed.
- 5) Figures to the right indicate FULL marks.
- 6) Assume suitable data if necessary.

SECTION-I

- Q.1**
- a) Differentiate between an array and linked list. (05)
 - b) Write down the algorithm for quick sort. (05)
 - c) Represent the polynomial $6x^2y^2 + 3x^2 + yx^3y$ using linked list. (04)
- Q.2**
- a) Write a C program to arrange the given array in an ascending order using pointers. (06)
 - b) List the file operations and the commands associated with them. (07)
- Q.3**
- a) Write down the algorithm for insertion sort. (06)
 - b) List the parameters of algorithm analysis and explain them. (07)
- Q.4**
- a) Write an algorithm to delete node from the front end of a double linked list. (06)
 - b) Write down a function to add two to polynomial. (07)

SECTION-II

- Q.5**
- a) What is a stack? Differentiate between an queue and a stack (05)
 - b) Define and explain AVL tree with the help of a diagram? (05)
 - c) Explain the concept of depth first traversal (04)
- Q.6**
- a) Evaluate the postfix expression $ABC -D^* +E^*F+$, where $A=5, B=4, C=3, D=5, E=2, F=7$ (06)
 - b) Write down a function to display the contents of the Stack (07)
- Q.7**
- a) Explain the following concepts with respect to tree: (06)
a)post order b) In order C) Pre order
 - b) Draw the tree structure with following contents: (07)
4,6,12,9,5,2,3,13,8,3,7,11
- Q.8**
- a) Differentiate between a minimal spanning tree and shortest path problem with the help of a diagram? (06)
 - b) Given a graph, find the shortest path (07)

