

# PC-11794/NJ

**D-5/2111**

DATA STRUCTURE – 304-A/305-A

(Semester–III)

(Common for MC & B.Sc. (Hon's) in Math)

Time : Three Hours]

[Maximum Marks : 40

**Note :** Attempt *two* questions each from Section-A and B of the question paper and the entire Section-C which is compulsory.

## SECTION – A

- I. Compare and contrast single dimension and multi dimension array, with example and give their two applications. (6)
- II. Explain doubly link list and circular link list with example. (6)
- III. Explain queue with example and give its two applications. (6)
- IV. Compare and contrast linear and non-linear data structures with example. (6)

## SECTION – B

- V. Explain push operation, pop operation and LIFO with example. (6)

VI. Explain the following, with example :

- (a) Quick Sort.
- (b) Sequential representation of graph. (6)

VII. Discuss with example, insertion and deletion in a tree. (6)

VIII. Explain merge sort and sort the elements in array 'A' using merge sort. (6)

A = {12, 4, 7, 3, 5, 1, 9, 14, 8, 2}.

### SECTION – C

- IX. (a) Explain sparse array in short. (2)
- (b) Explain Big O notation. (2)
- (c) Give *two* applications of link list. (2)
- (d) Explain recursion in short. (2)
- (e) Explain graph with example. (2)
- (f) Convert  $2+3*4+6$  notation into postfix notation. (2)
- (g) Give *one* application of stack. (1)
- (h) What do you mean by sorting? (1)
- (i) What does the term linear search means? (1)
- (j) Name two ways of memory representation of array. (1)
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