DATA & FILE STRUCTURES

1. (a) What do you mean by Data structure ? Explain various types of data structure. 10

   (b) What do you mean by an Array ? How array is represented in Memory ? 10

2. What do you mean by Sorting ? Write algorithm for bubble sort. Discuss its complexity. Sort the following elements according to bubble sort : 32, 51, 27, 85, 66, 23, 13, 57. 20

3. Write short notes on the following :
   (i) Sparse arrays. (ii) Garbage collection. 20

4. Differentiate between the following :
   (i) Stack and Queue. 10
   (ii) Single linked list and Two-way list. 10

5. Write algorithm for the following :
   (i) Traversing a Linked list.
   (ii) Insertion at the beginning of Linked list.
   (iii) To search a unsorted Linked list. 20

6. Write algorithm for evaluation of a postfix expression. Evaluate the following postfix expression :
   P : 12, 7, 3, -, /, 2, 1, 5, +, *. +,) 20

7. What do you mean by Binary search tree ? Write algorithms for searching and insertion in a binary search tree. 20

8. What do you mean by Hashing ? Explain hash function and various methods of collision resolution. 20

9. Explain sequential, direct and indexed sequential file organizations in detail. 20

10. Write short notes on the following:-
    (i) File operations.

(ii) Primary and Secondary key.

(iii) Fixed and Variable length record.   20

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