DF-3733

B. C. A. (Sem. III) (CBCS) Examination
March/April – 2016
Data Structures

Time : Hours]   [Total Marks : 70

Instructions :

(1)

(2)   Write to the point
(3)   Provide examples and diagrams wherever appropriate / necessary
(4)   Figures to the right indicate ful marks to the question.

Q 1   Answer Following: (Any Seven)   **14**

(a) Explain Priority queue.
(b) List out application of Stack
(c) Explain simple, strictly and complete binary tree.
(d) What do you mean by self referential structure?
(e) Convert Infix to postfix:- A / (B – C + D) * E + F ^ G
(f) What do you mean by priority queue?
(g) Explain graph with an example.
(h) Write down advantages of Quick sort.

Q 2   (A) What do you mean by linear Data Structure? Explain Stack with real   **07**
         world example. Also, write down an algorithm of infix to prefix.

OR

(A) How to insert and delete an element in binary tree? Explain with an   **07**
    appropriate algorithm.

(B) What is Queue? Discuss difference between simple queue and circular   **07**
    queue. Write down algorithm how to insert an element in circular
    queue.

Q 3   (A) What is searching? Discuss difference between binary search and linear   **07**
         search. Write down an algorithm of binary search.

OR

(A) What is sorting? Explain selection sort. **07**

(B) What is tree? Explain Link and Threaded storage representation of binary tree **07**

Q 4 (A) Describe the concept of Singly link list. Write an algorithm to perform Delete and Display nodes of single link list. **07**

OR

(A) Describe the traversal operations of binary tree. **07**

(B) Explain Insertion Sort with an algorithm **07**

Q 5 (A) Explain Tower of Hanoi . **06**

OR

(A) Explain Simulation. **06**

(B) Construct tree:- (Show every steps) **04**

Inorder:- − + / 8 4 6 * 2 − 9 8
Preorder:-8 / 4 + 6 − 2 * 9 − 8

(C) Explain 2-3 tree **04**